

A School-based Cognitive Behavior Modification Intervention
Strategy for Learned Helpless Mentally Retarded Students

Margaret F. Ogilvie

Department of Graduate and Undergraduate Studies in Education

(Submitted in partial fulfillment of
the requirements for the degree of
Master of Education)

COLLEGE OF EDUCATION
B R O C K U N I V E R S I T Y
St. Catharines, Ontario

September, 1985

© M. F. Ogilvie, 1985

Acknowledgements

A thesis such as this one has involved countless people in its conception, implementation, and completion. There are many whose help I would like to acknowledge. Special thanks goes to Dr. Adele Thomas, my advisor. Through her example and tireless vigilance I have learned a great deal about educational research which I hope is reflected in this dissertation. Thanks are also extended to Dr. John Novak and Dr. Al Wheeler, my Committee Members for the advice and support they have offered. The co-operation and active participation of the staff and students at Lingarden and Lady Spencer Churchill Schools as well as the dedication of the six Brock students who implemented the program were greatly appreciated. Marlaina Whitney created the illustrations and graphs for this work and spent many hours on the word processor typing and correcting the manuscript. Her dedication and support were invaluable. My family, as well, deserve heartfelt gratitude. To my father, who proof-read, my children, who gave up many hours with Mom, and to my husband, who offered valuable advice and consolation, I offer my sincere thanks.

For convenience throughout the text, a student was referred to as 'he' while a teacher was called 'she'.

ABSTRACT

This study assessed the usefulness of a cognitive behavior modification (CBM) intervention package with mentally retarded students in overcoming learned helplessness and improving learning strategies. It also examined the feasibility of instructing teachers in the use of such a training program for a classroom setting.

A modified single subject design across individuals was employed using two groups of three subjects. Three students from each of two segregated schools for the mentally retarded were selected using a teacher questionnaire and pupil checklist of the most learned helpless students enrolled there. Three additional learned helplessness assessments were conducted on each subject before and after the intervention in order to evaluate the usefulness of the program in alleviating learned helplessness. A classroom environment was created with the three students from each school engaged in three twenty minute work sessions a week with the experimenter and a tutor experimenter (TE) as instructors. Baseline measurements were established on seven targeted behaviors for each subject: task-relevant speech, task-irrelevant speech, speech denoting a positive evaluation of performance, speech denoting a negative evaluation of performance, proportion of time on task, non-verbal positive evaluation of performance and non-verbal negative evaluation of performance. The intervention package combined a variety of CBM techniques such as Meichenbaum's (1977) Stop, Look and Listen approach, role rehearsal and feedback. During the intervention each subject met with his TE twice a week for an individual half-hour session and one joint twenty minute

session with all three students, the experimenter and one TE. Five weeks after the end of this experiment one follow up probe was conducted. All baseline, post-intervention and probe sessions were videotaped. The seven targeted behaviors were coded and comparisons of baseline, post intervention, and probe testing were presented in graph form. Results showed a reduction in learned helplessness in all subjects. Improvement was noted in each of the seven targeted behaviors for each of the six subjects. This study indicated that mentally retarded children can be taught to reduce learned helplessness with the aid of a CBM intervention package. It also showed that CBM is a viable approach in helping mentally retarded students acquire more effective learning strategies. Because the TEs (Tutor experimenters) had no trouble learning and implementing this program, it was considered feasible for teachers to use similar methods in the classroom.

TABLE OF CONTENTS

	Page
Acknowledgements.....	ii
Abstract.....	iii
List of Tables.....	vii
List of Figures.....	viii
 CHAPTER ONE: Cognitive Behavior Modification with Mentally Retarded Students.....	 1
 CHAPTER TWO: The Development of Learned Helplessness in Mentally Retarded Students.....	 8
 CHAPTER THREE: Method.....	 28
Review of Single Subject Designs.....	28
Overview.....	35
Subjects.....	36
Instruments.....	38
Procedure.....	40
Coding Procedure.....	44
 CHAPTER FOUR: Results.....	 46
Learned Helplessness Assessment.....	46
Analyses of Targeted Behavior.....	51
Task-Relevant/Task-Irrelevant Speech.....	51
Positive/Negative Verbal Evaluation of Performance.....	56

Positive/Negative Non-verbal Gestures.....	59
Proportion of Time Spent on Task.....	59
Assessment of Intervention Package.....	64
CHAPTER FIVE: Discussion.....	66
References.....	71
Appendices.....	89

LIST OF TABLES

Table	Title	Page
1	Perseverance Following Failure Assessment.....	50
2	Personal Attribution Assessment: Subject's self- Ratings of Maze Performance.....	52
3	Scores on Perceived Influence Questionnaire.....	53

LIST OF FIGURES

Figure	Title	Page
1	Hypothetical Multiple Baseline Design Across Subjects.....	31
2	Perseverance Following Failure Assessment.....	49
3	Graphical Analysis of Task Relevant/Irrelevant Speech.....	55
4	Graphical Analysis of Positive/Negative Verbal Evaluation of Performance.....	58
5	Graphical Analysis of Positive/Negative Non-verbal Gestures.....	61
6	Graphical Analysis of Percentage of Time on Task...	63

Chapter One

Cognitive Behavior Modification with Mentally Retarded Students

The past twenty years have seen remarkable changes in the expectations and approaches held toward mentally retarded individuals by certain educators and psychologists. Before the 1960's systematic training programs for this group were almost non-existent (Whitman & Scibak, 1979). However, a greater realization of this population's potential has led to a wish to further educate and rehabilitate these people. Application of the behavioral model is perhaps the main reason for this change in outlook (Whitman & Scibak, 1979). When Ellis compiled the first edition of the Handbook of Mental Deficiency in 1963 there was no mention of the term "behavior modification" but by the time the second edition appeared in 1979 the situation had changed (Ellis, 1979). The use of behavioral techniques had made such inroads into the field that some mention of it is found within every topic in this book, and a total chapter is devoted to research in the area. Most residential institutions, day-care centres, as well as schools for the mentally retarded now use behavior modification procedures to some degree. Whitman and Scibak (1979) claim that introducing behavior modification techniques into institutional settings has been responsible for a shift in the emphasis of programs from "custodial to developmental" (p. 289). The goals of many studies were to increase adaptive behaviors such as self-help skills and attending to task and to reduce maladaptive ones such as self-stimulation, aggression, or self-injurious actions by the systematic application of operant conditioning techniques. Sabatino, Miller, and Schmidt (1981) claim that exceptional students have been helped by behavioral procedures in a

variety of ways such as increasing academic response rates, attendance, and instruction-following.

Despite these gains many researchers have become disenchanted in the past eight or ten years with the traditional behavior modification interventions and, as a result, many behaviorists have gone "cognitive" (Mahoney, 1974; Meichenbaum, 1977). There are a number of reasons why this shift to a more cognitive orientation in dealing with special pupils occurred. Kendall and Hollon (1979) feel that many behavioral interventions are limited in scope, effectiveness, and in their ability to explain or modify complex human behavior. The fact that the changes brought about by behavior management techniques are often neither generalizable nor durable has led to a search for more effective methods of treatment (Harris, 1982; Meichenbaum, 1977). Some researchers have identified problems when dealing with certain populations. Douglas (1975), in her work with hyperactive children, found that relying only on operant procedures was unwise since reinforcement may lessen rather than increase attention to task. Sabatino et al. (1981) stated that too much emphasis on behavior modification could well result in children not learning how to learn because of an over dependence on interventions which have nothing to do with cognition. Expanding bodies of research in psycholinguistics, self-control processes, and information processing, as well as a renewed interest in the work of Jean Piaget by American psychologists, added to the growing dissatisfaction with pure behaviorism (Whitman, Burgo, & Johnston, 1984). Many behavioral scientists have embraced a social learning orientation (Bandura, 1977) and now see the individual as an active rather than a passive participant in life. Research designed to investigate the nature of deficits which contribute to exceptional students' performance has hypothesized that faulty cognitive strategies, or the lack of them, is a major determinant of any

problems these students may exhibit. It is felt that by adding cognitive components such as private speech, thoughts, perceptions, and expectancies to the operant procedures already being employed, some of the problems outlined above could be eliminated (Meichenbaum, 1980). According to Whitman et al. (1984) mental retardation specialists have been particularly receptive to a cognitive behavioral approach. Theories which are concerned with mental retardation have dealt mainly with cognitive constructs, and a considerable amount of research exploring the efficacy of these theories has taken place. Added to this has been a growing interest in developing strategies for maximizing the intelligence of mentally retarded students.

The main focus of cognitive behavior modification with individuals is on establishing the person as the centre of control rather than being controlled by others, as is the case in a traditional model of behavior modification (Whitman et al., 1984). This should be especially appropriate for mentally retarded students since they have difficulty controlling their own behavior (Kurtz & Neisworth, 1976), are constantly in need of supervision (Mahoney & Mahoney, 1976), and may well feel that they have no control over events in their own lives (Weisz, 1979). The last ten years have seen a wide variety of studies as researchers have attempted to ameliorate the academic and social deficits shown by mentally retarded students. Whitman et al. (1984) considered that these studies fell into five categories: self-regulation (Litrownik & Steinfeld, 1982); problem-solving (Budoff & Corman, 1976); cognitive strategy training (Kendall, Borkowski & Cavanaugh, 1980); correspondence training (Scibak, Whitman & Johnson, 1980); and self-instructional training (Leon & Pepe, 1978). These authors have compiled a thorough overview of this research and, while the present study will not examine these studies in detail, a review of the efficacy of the cognitive approach will be undertaken.

While an impressive number of cognitive behavioral intervention studies have been conducted in the area of special education in general and mental retardation in particular, it is not possible to definitively assess the worth of the cognitive intervention approach at this early stage. There are authors such as Whitman et al. (1984) and Harris (1982) who conclude that cognitive behavior strategies appear to be a promising approach to dealing with exceptional pupils. Research findings show that mentally retarded children can master self-control skills and improve task performance (Whitman et al., 1984). Others, however, feel that when it comes to dealing with exceptional children this promise has not been fulfilled. Gerber (1983) claims that the "practical applications of cognitive behavior modification for children with learning problems have been meager" (p.256). In his estimation the most obvious area of failure has been in the remediation of academic problems. While Meichenbaum (1980) considered that cognitive intervention may well prove valuable in dealing with exceptional students, the work has been hampered by a "naive and simplistic" (p.84) approach.

Fortunately there is an array of advice available to a prospective researcher or teacher interested in educational interventions for mentally retarded students. However, before this can be examined, it must be understood that the widespread interest in, and use of, cognitive behavioral interventions has resulted in the development of a wide range of labels and methods. According to Craighead, Wilcoxon-Craighead, & Myers (1978), the approach generally known as cognitive behavior modification (CBM) is an integrated, eclectic approach influenced by developmental psychology, cognitive psychology, behaviorism, social-learning, and instructional theories. CBM then is a "generic" term embracing a number of techniques and procedures based on generally compatible ideas (Hollon and Kendall, 1979). Harris (1982) defines CBM as

"the selective, purposeful combination of principles and procedures from diverse areas into training regimens or interventions, the purpose of which is to instate, modify or extinguish cognitions, feelings and/or behaviors" (p.5). While this approach allows for a wide variety of procedures and emphases, there is a consensus among researchers involved in the training of mentally retarded subjects that the value and usefulness of strategies used in CBM is best demonstrated if changes are generalizable and durable (Blackman and Lin, 1984; Meichenbaum, 1980).

Meichenbaum (1980) pointed to several problems in the past with CBM procedures which have perhaps accounted for the failure to obtain the desired generalizable and maintained results. The term generalization is so broad and so encompassing that it has become difficult to know what is meant when it is used and this lack of consistency of meaning has confounded many studies. According to Stokes and Baer (1977), generalization will not just occur but must be specifically planned for. In much of the investigation done to date performance changes were based on laboratory tasks in a controlled environment rather than on relevant educational tasks in a natural setting (Whitman et al., 1984). Meichenbaum (1980) stated, "it does not seem reasonable to expect that teaching children to self-instruct on some set of laboratory tasks will automatically transfer to improve classroom performance" (p.87). Bornstein and Quevillon (1976) found that generalization was more likely to occur if students used their teacher's name when they employed self-instructional techniques, and if they pretended that the experiment was taking place in their own classroom. While laboratory studies may be easier to set up and run, the effort involved in creating a well designed and controlled school-based study would surely be justified in order to secure generalizable results. Training studies also show that children can become fixed on certain strategies or tasks and this hampers

generalizable learning. Teaching general self-monitoring and questioning skills as well as instruction in superordinate skills would be one way to overcome this problem (Meichenbaum, 1980). Borkowski, Reid, and Kurtz (1984) concluded that before superordinate processes can be mastered, subordinate ones must already have been learned. In addition, subjects must know why they are learning a skill. This can be accomplished through the use of example and feedback.

The fact that little has been done to connect attribution theories such as Weiner's (1974) and the study of problem solving in mentally retarded students seems to be a serious oversight. Without taking into account the affective, motivational, and personal attributes of an individual an important component in training strategies for long term generalization may be overlooked (Borkowski et al., 1984). O'Leary (1980) felt that motivational factors may well play an important part in whether or not a child will choose one strategy or another and this could have direct bearing on generalization and maintenance of behavioral change.

Perhaps the most direct instructions to be followed in the search for generalization and maintenance come from researchers working with mentally retarded children in the metacognitive area (Borkowski & Cavanaugh, 1979; Brown & Campione, 1978). They thought that, in order to ensure generalization, a training procedure must provide explicit feedback about the new strategies being taught; be conducted in a variety of settings; directly teach for generalization by closely linking the training and generalization contexts as well as providing a variety of responses across numerous settings, conditions, or persons, and teach general strategies as well as specific ones.

It would appear in light of the advice offered by researchers who have struggled with the initial high hopes generated by CBM and the subsequent disappointment in its ability to produce clear-cut results of

generalization and maintenance that it is too early to dismiss its effectiveness. However, if CBM is to become a valuable intervention in helping mentally retarded individuals generalize and maintain skills, sound research procedures based on this advice must be developed.

This thesis is concerned with developing a CBM intervention for use with mentally retarded students based in part on the above theoretical ideas and techniques. In order to determine the most effective training components to be included a review of related studies was undertaken. A review of this relevant literature is presented in Chapter Two. In this review the theory and background of learned helplessness will be fully examined, and intervention approaches for preventing or ameliorating learned helplessness in learning disabled students, as well as related research for the mentally retarded, was assessed. Conclusions from these training studies will be discussed and incorporated into existing CBM literature on training programs for mentally retarded children in order to test an appropriate intervention to help eliminate learned helplessness in mentally retarded students. Chapter Three details the components and procedures of the training program as well as the instruction materials used. The students selected for the study, the classroom setting and the method of data analysis are described in this chapter. Analysis of results and discussion of educational implications are contained in Chapters Four and Five.

Chapter Two

The Development of Learned Helplessness in Mentally Retarded Students

According to the 1977 revision by the American Association on Mental Deficiency (Grossman, 1977), "Mental Retardation refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period." The first component, intelligence, usually requires that the person be more than two standard deviations below the mean as measured by an IQ test, whereas adaptive behavior judges a person's "personal effectiveness, independence and social responsibility" against age and cultural norms (Matson & Mulick, 1983, p.xii).

There is a variety of problems to be faced during the developmental period between birth and 18 years and on into adulthood by anyone who has below average intelligence and/or adaptive deficits. These will, according to Combs, Richards, and Richards (1976), affect the growth of that person's personality. Since they feel that man's basic need is a need for adequacy and since the unique experiences which a person has determine what kind of an individual he becomes, then the experiences of an adequate person must have given him feelings of self-worth and ability, whereas the experiences of an inadequate person have led to the idea of personal worthlessness and inability.

A retarded person may be blocked in his quest for adequacy in a variety of ways. Because of the difficulty in abstract and symbolic thinking which many mentally retarded people encounter (Morgenstern,

1983), there may well be an inability for the person to understand what is expected of him which leads to difficulty in performing in a socially acceptable manner. Being unable to perceive everyday situations clearly causes feelings of inadequacy which constantly threaten and frighten a person. Situations seen as challenging by an adequate person are perceived by a threatened individual as overwhelming events which will simply constitute one more example of his never ending failure (Combs et al., 1976).

There are several ways in which society sees the mentally retarded person in a less than favorable light. A normal person changes his behavior as he perceives a need to move from one setting to another. Because mentally retarded people have difficulty shifting activities, they often lose track of the "appropriateness of a setting" (Leland, 1983 p. 216) and so, may engage in behavior which others see as unacceptable. Our western culture places great emphasis on the physical mental prowess of the individual (Ingalls, 1978). Good intellectual ability and appearance are both things to be coveted and enhanced. Throughout a person's life constant examples of this can be seen. Parents proudly parade the clever things their children do and say, and a person's school career is a constant striving to attain the intellectual standards of those more clever than oneself. Good looks and physical attributes have helped many attain their goals in life. Occupational opportunities as well as monetary rewards are usually greater the higher up the intellectual ladder a person rises. In a society that places such value on mental capacity Ingalls (1978) feels that one of the worst criticisms that can be made against someone is that he lacks intellectual ability. The fact that the mentally retarded fall short of the socially acceptable norm in ability, and often in appearance, may well interfere with attempts to improve public perceptions toward the mentally retarded and could well lead to

constant social ostracism and segregation inflicted on these people. Many experts point to the enlightened trends in treatment and attitudes toward the mentally handicapped (Ellis, 1963; Janicki, Castellani, & Norris, 1983) but, while this is hopefully happening, many prejudices against mentally retarded people can still be observed. The resistance that members of a neighbourhood mount to keep a residential home for the retarded out of their community is one such example (Ingalls, 1978).

A person's self-concept is learned from the various experiences in which he engages every day (Gergen, 1971). According to Purkey, Raheim, and Cage (1983), during the early years of development a child is constantly being sent "inviting" or "disinviting" messages which describe for that child his "abilities, value and autonomy" (p. 52). By the time he enters school his self-concept affects how he perceives each experience he has. This process, in turn, slowly changes his self-image. From the above discussion it is obvious that a retarded child would receive many disinviting messages about his worthiness. Being seen by others as not being able to succeed physically and mentally, and as engaging in behavior that is not considered normal, leads to reinforcement of his perception of himself as inadequate. In this way a vicious circle is formed and perpetuated. Because such a child sees himself basically in negative ways, he is less able to deal with life. He is left "helpless and fearful before the demands of living" (Combs et al., 1976, p. 299). Cruickshank (1947) feels that if a person defines himself too negatively he may simply give up in despair, allowing outside forces to do with him what they will. Ingalls (1978) states that the low self-esteem exhibited by many mentally retarded persons hampers their ability to cope with new situations. Mentally retarded children meet with many failure experiences as they grow up and may well learn to expect to fail at any new tasks they encounter. Studies which compared the self-concept of retarded and non-retarded

individuals (Leahy, Balla, and Zigler, 1982; Piers & Hall, 1964; Zigler, Balla, & Watson, 1972) showed that generally the retarded subjects had lower self-images than the non-retarded ones. Balla & Zigler (1978) concluded that the findings of such studies as these indicated that mental retardation may well result in a lowering of goals and aspirations. This in turn might well lead to a lack of purpose and motivation among this group.

The theory of learned helplessness, put forth by Seligman (1975), appears to pertain to the defeated behavior exhibited by many retarded persons. The past two decades have brought about considerable interest and research in the area of learned helplessness (Deiner & Deweck, 1978; Fowler & Peterson, 1981; Seligman & Maier, 1967). In the first work on learned helplessness with animals, Seligman & Maier (1967) found that naive dogs easily escaped shock by learning to jump from one compartment to another in a shuttlebox. However, dogs which were shocked with no chance of avoiding that shock were then unable to escape subsequent avoidable shocks even though they could have easily done so. Seligman (1974) stated, "When organisms are faced with important events that no voluntary responses they make can alter, the result is learned helplessness" (p.112). He contended that the most important factor in the development of learned helplessness was the animal's expectancy that it would have no control over future events. Learned helplessness has also been found in other animals such as mice, rats, cats, and monkeys (Seligman, 1975). These pretreated animals passively tolerated extreme amounts of shock without attempting to escape, just as the dogs had done.

After establishing a theory of learned helplessness using animals, Seligman (1975) next turned to consider his hypothesis using humans, theorizing that such conditions as depression, ulcers, and academic failure are often a result of this syndrome. Others also showed an

interest in this area, and many of the early experiments on human helplessness paralleled the animal studies (Gatchel & Proctor, 1976; Fosco & Geer, 1971), showing that man responds to inescapability in much the same way as animals. Hiroto (1974) subjected college students to loud noise in the following manner: one group could escape the noise by pushing a button; a second group had no control over relief; a third group received no noise. Students were then subjected to noise which they could terminate by moving their hands across a shuttlebox. Those who had escaped noise previously by pressing the button or those who received no initial noise, easily learned to control the noise in this new situation. Students who had been helpless to control noise level, however, tended to sit passively and take the noise, making no effort to escape.

When a person can perceive no connection between what he does and the outcome, motivational and emotional deficits result (Abramson, Seligman, & Teasdale, 1978). It becomes difficult for a person to later learn that responses produce the desired outcomes, and this leads to feelings of passiveness and depression (Hiroto & Seligman, 1975; Klein & Seligman, 1976). It appears to be the loss of control over the situation, rather than the loss of rewards, that produces helplessness (Thomas, 1979). Benson and Kennelly (1976) saw a further condition needed in the production of learned helplessness. Because they found that positive, unrelated feedback did not produce learned helplessness, while negative, unrelated feedback did, they postulated that failure is a necessary component in producing the phenomenon.

As more investigations into human helplessness occurred, conflicting views became apparent. While certain studies showed performance deficits (Hiroto & Seligman, 1975; Thornton & Jacobs, 1971) others were unable to find deterioration in performance following learned helplessness pre-treatment (Wortman & Brehm, 1975). Still others discovered increases

in performance after training (Roth & Bootzin, 1974; Roth & Kubal, 1975). Dweck and associates (Dweck & Bush, 1976; Dweck & Goetz, 1978; Dweck & Reppucci, 1973) found that when children were confronted with intellectual problem-solving situations, failure produced very different results in different children. Some showed a deterioration in performance with a proportion of this group being incapable of solving problems which they had already mastered in the past. Others appeared to work harder after failure than before to find solutions.

These inconsistencies led researchers to attempt to explain why the learned helplessness model, which appeared to work so well in explaining animal behavior, did not hold true when applied to man (Dweck & Reppucci, 1973; Hanusa & Schultz, 1977; Roth & Bootzin, 1974). According to Hanusa and Schultz (1977), the early work did not take into consideration the cognitive capacities of man and, in particular, his information processing abilities. Because a person's integrative ability enables him to assess any situation confronting him and plan for future contingencies, he should be better equipped to ward off learned helplessness than an animal. Why then are some people able to do this and others not?

Dweck and Goetz (1978) found that the difference between a helpless group and a mastery-oriented group of children with whom they worked lay in the attributions which each displayed toward success and failure. To better understand how a child will perceive success or failure, Dweck and her co-workers looked to Weiner's theory of attribution (1974) for guidance. In this model ability and effort are held as internal properties by a person, whereas task difficulty and luck are looked on as external factors beyond his control. Ability and task difficulty are considered stable, while luck and effort are seen as variable or unstable. With a scoring technique presented by Weiner and Kukula (1970), the Intellectual Achievement Responsibility Questionnaire (Crandall, Katkowsky

& Crandall, 1965) was divided into the elements of effort and ability to better see how students perceived success and failure. A student was asked to choose between either an external factor such as luck or task difficulty, or an internal factor such as effort or ability, to explain the outcome of positive or negative achievement situations.

Mastery-oriented children placed more emphasis on the internal factor, effort, feeling that motivation was responsible for outcomes. On the other hand, children whose performance deteriorated after experiencing negative outcomes placed blame on external factors. Feeling that failure was due to effort left the first group of children perceiving that they could control future academic endeavors by increasing their motivational level. Blaming external factors resulted in feelings of uncontrollability and expectations that future ventures would also end in failure. When non-persistent children did take responsibility for failure they blamed it on lack of ability, an internal-stable factor, more often than persistent students did.

In 1978 Seligman and his co-workers, recognizing that they, as well as many other investigators, had become "disenchanted with the adequacy of theoretical constructs originating in animal helplessness for understanding helplessness in humans", reformulated their learned helplessness hypothesis (Abramson, Seligman & Teasdale, 1978, p. 54). To the attribution theory of Weiner (1974), Seligman added several dimensions. Helplessness deficits which are found over a wide variety of situations were considered to be global, while those that are narrow in scope were termed specific. Making global attributions suggests that helplessness may be experienced across a wide variety of occurrences, while specific attributions may limit helplessness to that one specific situation. Seligman also considered that a time frame is important in building a person's attributions for failure. Helplessness deficits of

short duration were called transient, while long-lasting ones were termed chronic. A person believing that noncontingency of reinforcement will occur for other people as well as himself attributes this outcome to external factors, and this is known as universal helplessness. If, however, a person feels that an outcome will happen only to himself his attributions are internal and this is personal helplessness. It is possible, then, for a person to make attributions about outcomes that may be due to stable-unstable, internal-external, global-specific, or universal-personal causes which will have a bearing on future expectations of noncontingency.

A large part of the reformulation article by Abramson et al. (1978) considered the various combinations of the attributions for success and failure listed above. It was concluded that people most prone to learned helplessness attribute failure to global, stable and internal factors. Their learned helplessness would be general and chronic in nature and their self-esteem low.

Dweck and her co-workers (Dweck, 1975; Dweck & Bush, 1976; Dweck & Goetz, 1978) have extended the learned helplessness theory into the realm of child development and have paved the way for subsequent work in this area. Researchers have recognized that learning disabled (LD) students show many of the characteristics of learned helplessness (Abramson, Seligman, & Teasdale, 1978; Canino, 1981; Thomas, 1979). These children often become easily frustrated and are ready to give up at the first sign of failure. They may show anxiety as well as a desire to perform tasks below their ability level (Bluestein, 1967; Fowler & Peterson, 1981). A prevalent feeling of negative personal attitude and beliefs about academic achievement can also be found among this group (Thomas & Pashley, 1982). The attributions toward success and failure held by many of these children are also consistent with the learned helplessness syndrome (Fincham &

Barling, 1978). These students learn to expect that their lack of control over a variety of situations will be permanent (Rholes, Blackwell, Jordan & Walters, 1980) and that failure is not something that can be overcome with effort (Pearl, 1982). Butkowsky and Willows (1980) examined students with varying reading ability and found that poor readers displayed a learned helpless pattern. They concluded that learned helplessness may contribute to the performance and motivational deficits shown by children with reading difficulties.

Weisz (1979, 1981, 1982) established that mentally retarded children are another special group who may be susceptible to learned helplessness. While only these two research studies and one theoretical paper report mentally retarded children to be learned helpless many other factors support this hypothesis. Retarded children experience more failure than normal children (MacMillan, 1971) and because of these repeated failures are more likely to perceive themselves, and to be seen by others, as less competent (Suran & Risso, 1979). These constant negative happenings teach a retarded child to expect failure as a matter of course (MacMillan, 1971), and may well lead to a belief that any outcome is independent of effort, that it will make no difference what he does. Residential life can be extremely regimented and while a greater number of retarded children are remaining at home, these children tend to be more sheltered and overprotected than normal offspring (Robinson & Robinson, 1976), and have less opportunity to master their environment. This could lead to a life low in contingency, and may well mean that such children never learn to control everyday events (DeVellis & McCauley, 1979). Weisz (1981) feels that being constantly ill-equipped to handle life's experiences "bears a marked resemblance to the successive failures used by investigators to induce helplessness in experiments with children" (p. 499).

Raber and Weisz (1979) studied teacher comments to retarded and non-retarded students during oral reading and found that teachers directed more critical comments about intellectual ability toward retarded children than non-retarded. This type of treatment, coupled with references to placement in a special class, teasing, and isolation from normal peers, may well cause a retarded child to attribute academic and social failure to lack of ability. Abramson et al. (1978) claim that much real-life helplessness comes from rejection and a feeling of social inadequacy. A study which compared educable mentally retarded (EMR) and normal achieving boys, found that EMR students, while taking responsibility for failure, did not feel success was under their control (Chan & Keogh, 1974). This would mean, then, that mentally retarded children would not see success as related to ability but might well attribute failure as due to a lack of it. These students generalized failure expectancies even to neutral events such as task interruptions (Chan & Keogh, 1974). Repeated failures and attributions to a lack of ability may well lead to the creation of a negative self-concept. Suran and Risso (1979) feel that it is the experiences endured while the retarded child is being socialized which gives him a feeling of inadequacy, rather than any innate feeling of inferiority. If Combs, et al. (1976) are correct in stating that man's basic need is a need for adequacy, then the mentally retarded child is at a great disadvantage in learning to cope with life.

While retarded children exhibit many of the characteristics of learned helplessness, little research linking learned helplessness and mental retardation has been done and no intervention studies have been attempted with this population before the present one. The reason that so few studies of the retarded (Floor & Rosen, 1975; Weisz, 1979; 1981; 1982) have been conducted in connection with learned helplessness may lie in the assumption that limited mental ability is the main cause of any difficulty

these people may encounter. While limitations in mental ability are bound to hamper learning, most investigators report that all retarded individuals can and do benefit from training programs (Sabatino, Miller & Schmidt, 1981; Stainbeck & Stainbeck, 1983; Quilitch & Gray, 1974). Stainbeck and Stainbeck (1983) cite four areas where successful skills have been taught to even profoundly retarded persons: the development of motor skills, self-help skills, reducing maladaptive behaviors, and the development of social and language behavior. Of course the higher the MA of the individual the greater the advances of any training program. However, the shift in emphasis to a more cognitive remediation approach has raised concerns that subjects with a mental age of less than 6 will not be able to grasp the necessary steps needed to master metacognitive skills (Borkowski, Reid, & Kurtz, 1984) and therefore this type of intervention can only be used for higher functioning mentally retarded individuals. There have been few studies which have examined the abilities of subjects with MAs less than 6. While Zigler and his co-workers (Weisz & Zigler, 1979; Zigler, 1969) have shown that the cognitive development of retarded subjects is comparable to that of non-retarded subjects of the same MA these studies have limited their investigations to subjects with an MA of greater than 6. Since studies on hyperactive non-retarded children with MAs of less than 6 indicate that cognitive training can help develop coping skills in this group (Meichenbaum, 1977) it might be assumed that similar metacognitive approaches could be used for mentally retarded students. Some researchers in the area of mental retardation feel that "there is an organismic or quasi-organismic difference in the cognitive structures of retarded and non-retarded individuals" (Leahy, Balla & Zigler, 1982, p.373). This difference could be responsible for assuring that a retarded student would do less well on any cognitive task than a non-retarded student of the same

MA. Catino (1976), cited in Balla & Zigler (1978), found that while higher functioning retarded students performed on metamemory skills equally as well as non-retarded students of the same MA, retarded children with an MA of 5 or less displayed delays or distortions on metamemory tasks. In view of the importance of the implications of this debate and the limited amount of research done to date, a considerable amount of further study is needed in this area. The present investigation will attempt to address this question by presenting a cognitive intervention to mentally retarded students with a range of mental ages.

In order to help determine a viable future course for learned helplessness remediation with mentally retarded children it is necessary to review the small amount of research done so far in this field. Three experimental studies (Floor & Rosen, 1975; Weisz, 1979; 1981), four theoretical papers (DeVellis, 1977; DeVellis & McCauley 1979; Bonnington, 1983; Weisz, 1982), and one clinical report (Stamatelos & Mott, 1983) constitute the literature in this specific area to date. The work by several investigators (DeVellis, 1977; DeVellis & McCauley, 1979; Floor & Rosen, 1975) done before the reformulation of the learned helplessness model for humans (Abramson et al., 1978) may possess points of interest but the overall assumptions are faulty in light of the model and, so, will not be discussed here. A basic understanding of the reformulated theory (Abramson et al., 1978) is essential to clear up misconceptions about learned helplessness and locus of control. Early work on learned helplessness emphasized the similarity between Rotter's (1966) idea of external control and the concept of learned helplessness. The revised stand, however, clearly states that these two are "orthogonal" since work with humans shows that a person can be either externally or internally helpless. The theoretical paper by Bonnington (1983) is an example of the confusion which can occur when this concept is not clearly understood.

She examined the areas of locus of control, learned helplessness, and attribution theories as they apply to the attitudes toward success and failure held by mentally retarded children. While she offered a short definition of these areas as well as citing several studies from each category, she equated an external locus of control with learned helplessness. As she was unable to integrate her views with an understanding of the reformulated theory of learned helplessness, this article is not as valuable as it might have been. One clinical study (Stamatelos & Mott, 1983) postulated the worth of "Habilitative Arts Therapy" as a treatment to alleviate learned helplessness in the retarded. While this was an interesting article the conclusions reached by the authors have no empirical foundation. They assumed that all mentally retarded people were learned helpless and that anyone suffering from learned helplessness was depressed. There was no testing for learned helplessness either before or after the therapy, and a number of variables could have been responsible for the changes seen. Much of this study appears to have been organized post hoc. In describing one subject the authors stated, "Although not conceptualized as learned helpless at the time, in retrospect this case seems..." (p. 47). The only research done using retarded children (Weisz, 1979; 1981) tested the hypothesis that this group would be susceptible to learned helplessness and found that, "helplessness can be learned over time by children who repeatedly fail to effect the outcomes they desire, and who learn to attribute failure to factors beyond their control" (1979; p. 311). Because Weisz (1979, 1981) has understood and integrated the literature on learned helplessness and mental retardation and has conducted two adequate experimental designs, his papers stand out as a primary source of information in this area.

In his first study Weisz (1979) compared children of low, average and high IQ at three mental age levels. He found that retarded children were

more helpless at upper MA levels than at the lower levels and he concluded that this might well be due to the fact that retarded students learn helplessness as a result of the "cumulative effects" of continual school failure. His second study (1981) looked at the differences between black and white children who had been identified as non-retarded and retarded by their schools. His findings indicated that retarded students showed more helpless behavior than non-retarded as rated by their teachers. The retarded students exhibited a marked deterioration in the use of problem-solving strategies compared to non-retarded children. Again more marked learned helplessness was evident at the higher MA levels in the retarded students' performance.

Essentially Weisz attempted to identify students suffering from learned helplessness by looking for a decline in effective strategies when exposed to unsolvable problems. At the same time, students were trained to think aloud when doing problems using the Diener and Dweck approach (1978) but results from this were not encouraging since no relationship was found between verbal behavior and performance. However, it appears that combining an identification method with one meant to alleviate the condition might not be the most successful way to obtain significant results. Perhaps a better approach would be to first select students who show a learned helpless mode of learning and then attempt to ameliorate that condition with a separate intervention.

Once it has been established that a retarded child is learned helpless, what can be done to remedy this condition? It is evident that the resources directly connected with learned helplessness and mental retardation are limited and so anyone wishing guidance must look elsewhere. Fortunately there are several avenues to be pursued by anyone attempting to set up an intervention program for mentally retarded students suffering from learned helplessness.

In the past, both identifying learned helplessness in children and attempting to alleviate it have concentrated on students with learning disabilities. A variety of investigators has established the link between learned helplessness and LD students (Abramson et al., 1978; Grimes, 1981; Pearl, Bryan, & Donahue, 1980; Thomas, 1979). A large portion of the studies concerned with this area has focused on attribution theory. Results of this research have shown that success and failure may not mean the same thing to a LD child as they do to a non-LD child. An LD student most often attributes positive outcomes to external factors beyond his control such as luck or the simplicity of the task (Pearl et al., 1980; Pearl, 1982), whereas failures are often attributed to his own lack of ability (Aronik & Dembo, 1983). In a study comparing LD adolescents and normal learners it was found that, while the LD students claimed that effort was important for success, they explained their own success or failure in terms which did not include effort at all (Tollefson, Tracy, Johnsen, Buening, Farmer, & Barke, 1982). Pearl and Bryan (1982) examined the attributions held by mothers of LD and non-LD children about the causes of their children's failures and successes. Mothers of LD students attributed their children's failures to lack of ability while they saw their successes as due to luck more often than mothers of non-LD children. The authors concluded that, in sharing the children's "harsh interpretation of their own performance" these mothers might well be forming and reinforcing the attributions held by their children.

The intervention studies dealing with learned helplessness and learning disabilities have also concentrated on attribution theory, and many researchers have been influenced by the work of Dweck and her colleagues (Dweck, 1975; Dweck & Goetz, 1978; Dweck & Reppucci, 1973). It was established earlier in this review that learned helplessness and mastery-oriented children differ in the attributions which they hold

toward failure and success (Dweck, 1975; Diener & Dweck, 1978). In looking at these differences it would seem that, if learned helpless children can be encouraged to use similar attribution styles as those used by mastery-oriented children, they might well become better equipped to deal with the many experiences they will encounter in life. If social-cognitive processes are used in the acquiring and maintaining of attributions which result in dysfunctional behavior, then it seems logical that social-cognitive processes could also be used to modify those same behaviors (Harvey & Weary, 1981). In 1975 Dweck felt "it should be possible to alter children's responses to failure by altering their attributions for failure" (p.679). If learned helpless children are taught to attribute their failures to a lack of effort, just as mastery-oriented children do, they should be able to cope more effectively with failure. Dweck placed helpless children in one of two different treatments. One group received attribution training and, while success was possible on most trials, several failure experiences were encountered each day. These were attributed by the instructor to lack of effort, interpreting for the child where he failed. The second group received success experiences only. Results showed an important improvement in the performance of the retraining group, and a shift in attitude to emphasize effort over ability as responsible for failure. However, the success-only approach showed no improvement during post testing and no change on attributional measures. Chapin and Dyck (1976) looked at the effectiveness of partial reinforcement, continuous reinforcement, or attribution retraining in underachievers and found that attribution retraining or partial reinforcement improved persistence, while continuous reinforcement did not. A combination of retraining and partial reinforcement yielded the best results. Another study which supports the idea of a mixed success-failure design (Kleinhammer-Tramill, Tramill,

Schrepel, & Davis, 1983) found that LD students may become learned helpless as a result of instruction which uses only noncontingent rewards. Simply rewarding students without taking into consideration the effects of reinforcement schedules may produce the opposite effect of that desired and render children incapable of dealing with any future failure (Fowler & Peterson, 1981). Brock and Kowitz (1980) attempted to alter attributions for failure by teaching LD students to take responsibility for their behavior, thus investing more effort when attempting a task. Results indicated that learned helpless LD students who receive attribution retraining show an increased persistence to task.

Both Thomas (1979) and Canino (1981) stressed the need for research into the role of internal cognitive variables affecting LD children. One of the ways in which attribution retraining has become operationalized is through the use of self-instruction and self-monitoring. Learned helplessness investigators (Blaess, 1977; Diener & Dweck, 1978) have followed the lead of researchers such as Meichenbaum (1977) who found that hyperactive, impulsive children can be taught to stop, look, and listen; to think before they act; and to talk to themselves in a self-guiding manner. Blaess (1977) applied this method to attribution retraining and found it was possible to alter attributions for failure and problem-solving strategies with the use of inner speech. Bugental, Whalen, and Henker (1977) used overt and covert self-controlling speech and self-reinforcement in an attempt to give effort attribution feedback to hyperactive boys, but found that embarrassment at using overt speech interfered with the program. Canino (1981) cautions that instructional programs must not allow a student to hold faulty perceptions of self-ability, but rather, must "modify what he says about failure and emphasize motivation rather than ability as a determinant of failure" (p. 480). Thomas and Pashley (1982) have broadened the approach to

attribution retraining even further. They worked with learning disabled children in a classroom setting where they combined teacher modelling, student practice of self-statements, teacher reinforcement of self-statements, and effort attributions. The authors concluded that the "self-talk" approach was viable for use in a classroom for developing skills in persistence and frustration tolerance.

While Weisz (1979, 1981) has established the susceptibility of mentally retarded children to learned helplessness, no research has been published as yet that has attempted to overcome learned helplessness in this group. The purpose of the present study, as stated in Chapter One, was to design interventions to help mentally retarded students overcome learned helplessness. This investigation attempted to address the relevant findings from both the CBM and learned helplessness literature in order to create an intervention package which could be used by teachers to help alleviate learned helplessness and improve the learning style of the mentally retarded students in their classrooms. A single subject, multiple baseline design was chosen as the most appropriate means to meet the requirements of a small sample (Kratochwill, 1978) as well as affording an opportunity to examine the individual "nuances" of each student (Partington, 1973). Students were chosen from as wide a range of chronological and mental ages as possible in order to test the idea that learned helplessness occurs over a broad spectrum of mental ages and to also assess which level can be most helped by the use of such an intervention package. A classroom-based intervention approach became impractical since it was desirable to choose the most severely learned helpless students in the school and because of the need for a varied CA and MA range. Since one of the main purposes of this study was to test the feasibility of creating an intervention package which teachers could use, and because Meichenbaum (1980) indicated that this would be the best

model to guarantee generalizable and durable results, an attempt was made to have the training sessions as close to a classroom setting as possible. The students met with the experimenter or tutor in groups of three or four around a table for all of the video-taping sessions as well as part of the intervention period, and an effort was made to conduct these sessions in a classroom fashion. As well, a variety of instructors and settings was incorporated into the intervention to increase the likelihood of obtaining more generalizable and durable results (Brown and Campione, 1978).

It has been shown by a number of investigators that the mentally retarded population exhibit signs of learned helplessness (Bonnington, 1983; DeVellis, 1977; Weisz, 1979). It appeared that a logical place to begin designing a study to ameliorate this syndrome was with the attribution retraining methods which have proven effective for alleviating learned helplessness in LD students (Dweck, 1975; Grimes, 1981; Thomas & Pashley, 1982). After consultation with both teachers and principals it was decided that, with careful teaching and monitoring, the mentally retarded students would be able to master the necessary concepts of the attribution retraining program. After the six students were chosen on the basis of their learned helplessness scores, an assessment of their learning styles was conducted by observing two twenty minute videotaped work sessions and by consulting with their teachers. All of the subjects spent a large portion of their time engaged in off-task behaviors, and all showed a negative attitude in both the verbal and non-verbal assessment of their own performance. By incorporating a CBM component it was expected that student attribution style would change, that time on task and task performance would also improve. Because this program was conducted by a group of tutor experimenters (TEs) it was possible to evaluate how readily such an intervention package could be implemented by a teacher in a classroom in order to alleviate learned helplessness and enhance learning

styles in the mentally retarded.

Chapter Three

Method

Over the last few years there has been an increased need for special educators to provide accountability for their teaching programs (Tawney & Gast, 1984). Because our education system places so much emphasis on individualized instruction it has become necessary to evaluate intervention plans for certain students. When dealing with individual cases the common group control design is not appropriate since it is impossible to draw conclusions about a specific person on the basis of group results (Sulzer-Azaroff & Mayer, 1977) and, of course, individualized teaching may well produce too small a population to make a group study feasible. Systematic strategies for studying the single subject have been developed which offer the investigator flexible but empirically rigorous methods of determining the worth of a program (Baer, Wolf, & Risley, 1968; Hersen & Barlow, 1976; Kratochwill, 1978; Tawney, & Gast, 1984). These single subject designs to be discussed fall into two basic categories: reversal designs and several variations of multiple baseline designs (across behaviors, across conditions, across subjects, as well as multiple probe). According to Tawney and Gast (1984) multiple baseline designs are appropriate for research in the special education field for three reasons: "1. They lend themselves to program efficacy measures. 2. They have no withdrawal of intervention requirements. 3. They are easy enough to conceptualize and implement to permit teachers and parents to conduct research" (p. 227).

In the reversal or A-B-A-B design baseline performance, A is measured

and once a stable standard of performance is established, the independent variable or intervention B is introduced and changes are recorded. This intervention is then removed and it is expected that a return to baseline A will occur. Once this happens B is reintroduced and, if similar change results, it is assumed that this change is due to the procedure B rather than an uncontrolled variable (Sulzer-Azaroff & Mayer, 1977). While the accountability of an intervention can be demonstrated clearly by the reversal design there are several disadvantages to this paradigm. Some investigators feel that a modified behavior may not be reinstatable once it has returned to baseline. However, a more serious consideration lies in the ethical concerns of allowing some undesirable behaviors (e.g. injurious ones) to be reversed even for a brief period (Tawney & Gast, 1984).

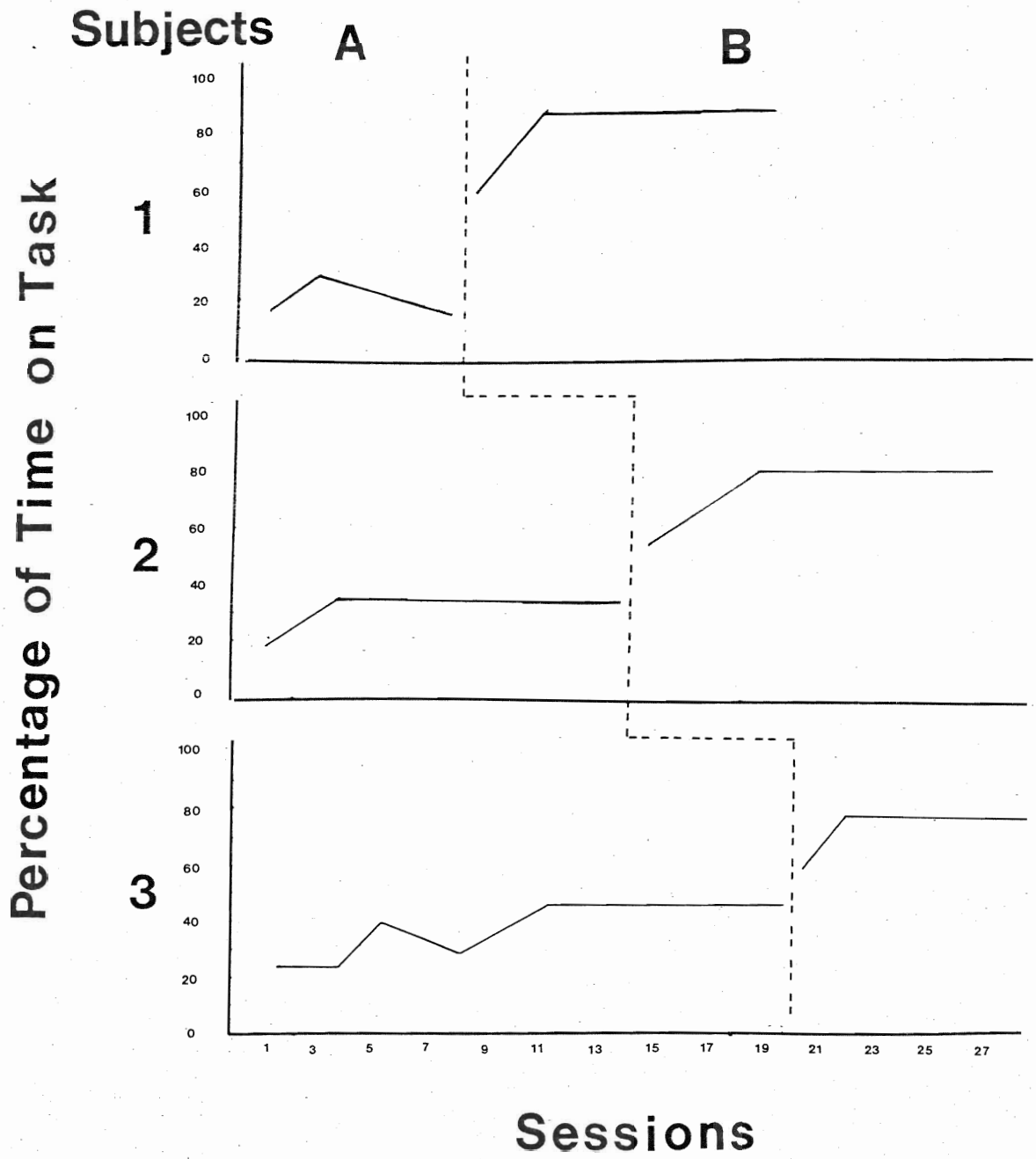
Multiple baseline designs are another way of developing single subject experiments. The three main types, multiple baseline across behaviors, conditions, or subjects have several points in common. Baseline data should be collected for three or more behaviors, conditions, or subjects depending on which design is chosen. Once a stable baseline is established for all data the intervention is applied only to the first behavior, condition, or subject in the series. An abrupt change should occur in this series while the others should remain at baseline level. Once this behavior, condition, or subject has reached a stable, predetermined criterion the intervention is then applied to the second series. A repeat of the procedures identical to the first should be conducted for each of the remaining series in a set of A-B designs with baseline A continued until intervention B is applied (See Figure 1, Tawney & Gast, 1984). According to Horner and Baer (1978) experimental control can be assessed in this model by watching what happens to performance at

FIGURE LEGEND:

FIGURE 1

Hypothetical Multiple Baseline Design Across Subjects: A behavioral baseline (A) was established simultaneously across two or more subjects. An intervention (B) was begun with subject one while the other subjects were maintained at baseline. Once post-intervention performance in subject one had reached criterion level, the intervention was introduced to subject two, as illustrated in this Figure.

Figure 1



the point at which treatment is initiated. They state "where intervention is applied, change occurs, where it is not, change does not occur" (p. 189). If this pattern is observed in the data, the intervention may be said to have been successful. There are several advantages that multiple baseline designs have over the A-B-A-B style. First of all it is not necessary to return to baseline to prove experimental control, which means that there is no need to reverse a therapeutic program. This type of design also makes it possible to test the validity of interventions which are irreversible (Hersen & Barlow, 1976). One of the disadvantages of this design lies in the fact that behaviors must be monitored for extended periods of time which may prove impractical and extended baselines could cause extinction in a subject (Murphy & Bryan, 1980) thus interfering with the later application of the intervention. The ethical question of postponing an intervention for behavior which needs attention may also be levelled against this design (Kratowill, 1978). Each of the multiple baseline designs has special problems which must be considered before choosing it as an appropriate design for a particular study. With a multiple baseline across behaviors design, the investigator must be sure that the target behaviors are not too highly interrelated since a change in one would result in a change in others. If baselines not yet exposed to the intervention are affected, the control of the experiment is jeopardized since it is impossible to determine to what factor the change may be attributed (Sulzer-Azaroff & Mayer, 1977). While the targeted behaviors must be independent of each other, they must, however, be enough alike to respond to the same intervention (Tawney & Gast, 1984).

In the multiple baseline across conditions an intervention is applied across three or more situations in which the target behavior is shown by the individual. Often this type of study is run by several different professionals working with the subject (teacher, resource teacher, aide)

and problems could arise unless consistency is maintained throughout all aspects of the intervention (Tawney & Gast, 1984). Multiple baseline across subjects designs necessitate that the intervention is applied across several subjects who show similar target behaviors in similar conditions. If the individuals are found in the same setting the extended baseline may well not produce the desired effect since the second and subsequent subjects may be influenced by the intervention applied to the first subject. Another variation of the multiple baseline design is the multiple probe design (Horner & Baer, 1978). With this design, while the intervention is sequentially applied in a series to one behavior, condition, or subject at a time, baselining is not continually collected. Rather, probes conducted on behaviors needing training are interspersed with training sessions and allow the investigator to determine the extent of change brought about by the intervention (Tawney & Gast, 1984). The obvious advantage to this design lies in the fact that continuous baseline data is not needed (Horner & Baer, 1978). Such a method may save time and do away with collecting "unnecessary" baseline measures on tasks which need to be taught. Cuvo (1979) states, "Minimal testing is especially reasonable when the baseline level is low or when there is no opportunity for subjects to acquire the target response(s) without direct training" (p. 222). A problem can arise with this method since it is hard to detect if there is variability in either the level or trend across the probe series. Response generalization which would quickly show up with an extended baseline could remain undetected with a probe design. The targeted behaviors, conditions, or subjects must be independent, and enough probes must be used to ensure the establishment of a stable trend before the intervention is applied (Tawney & Gast, 1984).

While the implementation procedures for each of these single subject designs are carefully laid out in a variety of books (Hersen & Barlow,

1976; Kratochwill, 1978; Tawney & Gast, 1984), any study has special considerations which may well necessitate changes to the prototype. Sulzer-Azaroff & Mayer (1977) caution that "experimental designs should be used to facilitate functional analyses of experimental questions. Experimental questions should not be altered to 'fit' existing designs. The question always comes first!" (p. 466). Each of these single subject designs was examined in order to find the most appropriate paradigm for this study. A multiple baseline probe design was ruled out since other conditions outlined below made it mandatory that an extended baseline be established. The present investigation involved testing a whole intervention package aimed at alleviating learned helplessness in mentally retarded students in a classroom setting and so, a multiple baseline design across sub-conditions was not a suitable choice. Because the intervention involved students working together in the same setting, a multiple design across behaviors was also unsuitable since introducing the intervention to Subject One might well interfere with the results of the other subjects being maintained at baseline (Tawney & Gast, 1984). A multiple baseline across individuals was chosen as the most appropriate but individual needs of this study demanded that this model be modified. After considerable thought and discussion two major changes to the traditional design were made. The necessity to simulate a classroom setting meant that the three students from each school were placed together in one room during the study, producing, in this case, two groups. Thus, instead of testing over three subjects this study applied the intervention over two groups. Chiang, Iwata, and Dorsey (1979) as well as Moore and Bailey (1973) made similar adaptations to their single subject designs, testing in one case over two conditions while in the other over two behaviors rather than using the customary three. In the present study, since each group had three students it should be apparent

that if change was noted, not only over both groups but also over all six subjects, that change should be attributed to the intervention and not to some other variable. Of course the investigator will not be able to say with any certainty what aspects of the intervention were essential for change to occur but, since the purpose of this study is to test the worth of an intervention package for use in a classroom, this was not a necessary component in this investigation. The second modification was needed because this experiment was an intervention package consisting of a number of components. It was not expected that immediate changes would occur in attitudes and behaviors once the program was implemented. Therefore, the usual method of maintaining Subject Two (or in this case Group Two) on baseline until criterion changes occurred in Group One could not be used here. Instead, an extended baseline was used for both groups in order to establish that stable behavior was exhibited by all six subjects over the seven chosen measures before intervention began. The study was begun with Group One two weeks earlier than with Group Two but no baseline was kept once the month of intervention began.

Overview

Six mentally retarded subjects assessed as being learned helpless were the participants in a study which attempted to establish an effective verbal training program aimed at changing attributions and improving task persistence in mentally retarded students. A modified multiple baseline design across subjects was used. Under the guidance of one supervisor and six tutors, students were divided into two groups of three boys each and were first videotaped for a period of four weeks during twelve 30 minute work sessions to establish stable baselines. This was followed by a four week training period consisting of two individual sessions and one videotaped group session of 30 minute duration each week. Written

transcripts of the video sessions were coded for seven measures which included verbalizations, task relevance, as well as positive and negative gestures pertaining to work. Three weeks of videotaped post intervention consisting of nine 30 minute work sessions allowed for a comparison between the baseline and post intervention period. This comparison will be presented as a series of graphs in the Results section.

Subjects

Subjects for this study were found both at a Junior and Senior Trainable Mentally Retarded (TMR) School. According to Board policy a student is eligible for admittance to a TMR school if his/her IQ is 70 or below. All of the eight students (seven male and one female) involved in this research had intellectual assessments completed by regional psychological testing services within one year of the commencement of this study. While several tests were used the Woodcock and Johnson as well as the Slosson were the most popular. The chronological age range of these subjects was 8.6 to 18.8 (mean 13.0, SD 4.2) while the mental age ranged from 3.4 to 7.8 (mean 5.2 ,SD 1.9). The range of intellectual functioning was from <30 to 62 (approximate mean 45.5, SD 13.95).

Because the majority of measures used in this study were verbal, it was also necessary that any subject be able to talk in simple sentences. Once the learned helplessness selection was completed the verbal ability of students was assessed. The criterion arrived at by the teachers at the senior school and experimenter was the need for each student to be able to speak, at a minimum, in two word sentences. This same criterion was used at the junior school, but after the teachers submitted those students who scored highest in learned helplessness the principal determined who fit the verbal criterion. A second factor which was considered when choosing appropriate subjects was their CA and MA and an attempt was made to have a

wide range in this area. Four boys from one school and three boys and one girl from the other school were selected in this non-random fashion. All the students chosen were from separate classrooms except for two boys from the junior school. Written parental permission was given for each of the eight subjects to take part in this study and for the experimenter to have access to the school records of each student. Before the intervention period began, two subjects were dropped from the project. One boy had severe emotional problems while the tutor experimenter for the girl subject left the university. So, as a result, six single subject multiple baseline studies are included in this thesis.

Teachers from the sixteen classes of the two TMR schools filled out the Helplessness Scale and Pupil Behavior Checklist used by Weisz (1979, 1981). While Weisz felt that the Pupil Behavior Checklist was a more accurate measure to indicate the degree of learned helplessness both measures were used in this study since no other appropriate measures have been published for use with mentally retarded subjects. Copies of both these assessments can be found in Appendix A

The Helplessness Questionnaire is composed of ten items, each of which is set as a seven point Likert scale where a score of one represents learned helpless behavior and a score of seven represents confident, independent, self-assertive behavior. While the possible scores on this questionnaire range from 10 to 70, the mean for these six subjects was 18.3 (SD=4.37). To further appreciate the degree of learned helplessness of the students chosen for this study, it should be noted that no subject was rated higher than 3 on any item by his teacher, indicating that each student was rated on the learned helplessness side of each of the ten questions.

The Pupil Behavior Checklist is based on eighteen items which the teacher uses to assess learned helplessness. There are two aspects of

this test. Six items measure learned helpless attributions while the remainder measure learned helpless behavior. All items are scaled from 0-2 with two always representing extreme helplessness. The mean helplessness attributions score was 11.2 ($SD=0.041$), mean learned helplessness score was 17.5 ($SD=3.9$). Again, these figures illustrate that near maximal ratings on learned helplessness were obtained for subjects for both learned helpless behavior and attitude indices. No normative data is available for either of Weisz's learned helplessness instruments.

Instruments

After the six students were selected three other assessments were conducted on each of them before baselining to establish the extent of their learned helplessness. This testing was repeated after the treatment had been concluded so that any changes in learned helplessness might be detected. Details of each subject's performance are discussed in the Results section.

Perseverance Following Failure - Two perseverance measures used by Weisz (1979) were adapted for this study. Each student completed a solvable pencil and paper maze which was chosen as being suited to each subject's individual ability by the TE and experimenter after three days of practice with mazes. An unsolvable maze was then presented to each student as solvable. The amount of time spent on each maze was recorded by the TE with the use of a stop watch. The choice of spending time on either maze was offered to each boy during a free period at the end of the session. Perseverance was measured as the ratio of time spent on the unsolvable task to that spent on the solvable one. In addition, the maze choice during free time was noted. Details of this assessment as well as those from post testing are summarized in the Results section.

Personal Attribution Assessment - Each student was asked to explain why he had either succeeded or failed when he finished working on a maze. Four attribution categories: ability, task difficulty, effort, and luck were presented to each subject during the three days of practising mazes. These concepts were taught with the help of picture cards (see Appendix B) and puppets. While each boy was encouraged to use words to describe how he had done, pointing to one of the pictures was accepted. Information on this assessment and post-testing were recorded in the Results section.

Perceived Influence Questionnaire - The present study used the scale devised by Weisz (1979) to assess attributions for failure in mentally retarded subjects. Weisz combined items from the Intellectual Achievement Responsibility Scale (Crandall, Katkousky, and Crandall, 1965) and the Stanford Preschool Internal-External Scale to develop a twenty item questionnaire suitable for this special population based on Diener and Dweck's (1978) view that learned helpless children do not often blame negative outcomes on lack of effort. Eight of the original questions were deleted because the experimenter and the teachers agreed that these items were too difficult for the present MR population. Five of the original items were analyzed as they were the only questions which dealt with the concept of greatest interest - lack of effort. The deleted items appeared to provide information very similar to that obtained from the Personal Attribution Assessment. Each of the five items was assessed such that answers compatible with the learned helplessness syndrome received a score of zero, while those consistent with mastery-oriented learners were coded as "one". This questionnaire (see Appendix C) was conducted orally on a one-to-one basis with each student and was administered during the session following the perseverance and attribution tests. The data from this survey for both pre- and post-testing is found in the Results section. All three assessments were given two weeks before baselining began and

then again in the week after post testing.

Procedures

The data collection and intervention procedures were conducted by six third year Brock University students as part of the practicum requirements for a course on the psychology of the exceptional child. These tutor-experimenters (TEs) attended two two-hour training sessions to learn about learned helplessness; attribution retraining techniques; gathering of appropriate materials for each student booklet; as well as running the video equipment used to tape each session. The experimenter was present during all videotaping sessions, while during the intervention period, unscheduled weekly checks were made to monitor the program.

Since the practicum period for third year students who served as TEs was seven months long, running from October to April, TEs spent the first six weeks getting to know their assigned student and working with him on a one-to-one basis twice a week for an hour. These sessions accomplished two purposes. First of all they allowed the TE an opportunity to prepare a booklet of appropriate work to be used during the study, and second, they reduced the chance that changes seen in a student's performance would be due to the remediation effect of a one-to-one relationship. During the last week in November and the first two in December multiple baselines were established for the first group. The three weeks of baselines established before the Christmas break were checked by running a fourth week of three sessions the first week in January. This alleviated the danger of any changes being due to the break over the holiday. Baselines were compiled on the second group two weeks later than the first. Seven measures were gathered for each subject.

1. Task-Relevant Speech.
2. Task-Irrelevant Speech.

3. Speech denoting a Positive Evaluation of Performance.
4. Speech denoting a Negative Evaluation of Performance.
5. Proportion of Time on Task.
6. Non-verbal Positive Evaluation of Performance.
7. Non-verbal Negative Evaluation of Performance..

(See Appendix D for a complete description of these categories as well as an example of each.)

The testing room at one school was the staffroom, while the stage of the gym was used at the other. The students sat around one large table for baselining and during video sessions after the intervention, but during retraining each student sat with his TE at a small table. Video equipment at each school consisted of a Sony AV 3600 reel-to-reel recorder, a Sony Video Camera AVC 3210, and a Sony Monitor CVM 950. Booklets of seatwork were prepared for each student. These were used throughout each step of the study. Puppets were used by both the TEs and students during the intervention period. Edible reinforcers in the form of Cheesies, chips and sugarless Freshie were used during the intervention.

Trial Period - The week before the study began was spent with a trial run to test procedures, assure that all TEs could operate the video equipment, and allow time for the students to become accustomed to being on camera.

Baseline Data Collection - Each student had a specially prepared booklet of exercises which he worked at during videotaping and during the intervention period. A mixed success-failure design established by Dweck (1975) was used whereby the first and third sections of each day's work contained items at, or below, mastery level, while the middle third held work above and at mastery level in a fifty-fifty ratio. Students were instructed at the beginning of each session to talk only about their work and to ask assistance from the other students and adults present if

needed. Out-of-seat behavior was corrected as soon as the student left the table. The entire videotaped session was coded by the experimenter for each of the seven baselines established.

Intervention - The three weeks immediately after baselines were established was spent presenting the intervention package. During this time each TE held two individual weekly sessions of one half hour with her student. In addition, one work period with all three students and TEs from each group as well as the experimenter was conducted each week. This joint session was videotaped to ensure that students did not become camera shy. The video sessions also provided a check that all adults involved in the study were using the recommended program format and techniques. The experimenter further monitored the operation of the study by making unscheduled biweekly visits to the individual sessions held for each student. During the intervention a variety of social-cognitive processes were used in an attempt to change attributions and improve persistence to task. Self-instruction techniques such as those used by Meichenbaum and Goodman (1971) formed the basis of the intervention strategy. Students were taught to STOP before they began to work, THINK about what they were asked to do, and LISTEN to themselves talk about their work as they did it. This self-guiding oral speech training was accomplished by a number of devices. An example of the cards used is found in Appendix E.

1. TE modelling - The TE attempted an item from the booklet using both the STOP, THINK, and LISTEN approach and effort statements. "I'm going to try one of your questions first today. I want you to listen carefully and then try and talk the same way when you work. Before I start my work I'm going to STOP (TE picks up a card with a stop sign on it.) I'm going to try my very hardest. Even if it's hard I'll find a way. I'm going to THINK (TE picks up card with a lightbulb on it.) What am I to do? I'll look carefully. Let's see, I'm going to print a capital A. I need to

LISTEN to myself as I talk to myself about my work (TE picks up a card of a large ear). OK I'm ready. I'm going to try my hardest to make an A. Start at the top; come down a nice straight line. Easy does it. Nice and slow. Good. Start at the top again, nice and straight. Oh, I went crooked. Rub it out. I know it's hard but I'm going to try my best. Go slowly, start at the top. Good, a little farther. There, now a bar across. Good girl, I'm done." The student was then encouraged to follow this procedure during the session and to use the cards for guidance. Any time he needed assistance the TE again modelled the appropriate behavior with the use of the cards.

2. Role Rehearsal - Rose (1972) and Bandura (1977) suggested that in order for a new behavior to become part of a person's repertoire it must be practised through covert, verbal, and motor responding. a. Covert responding - Imagery or covert responding can be used to produce a change both in academic and social behavior. The TE asked her student to close his eyes while she verbally practised the self-talk techniques outlined above. The student then became the teacher and the scene was repeated. b. Verbal responding - The student reviewed the self-talk and attribution retraining at each session. c. Motor responding - The student actually performed the work as he talked to himself.

3. Use of puppets - Puppets were used to reinforce the above concepts in a variety of ways, e.g. two TEs modelled appropriate behavior; a TE and student acted out a scene; two students put on a play.

4. Video review - Video reviews were used before and after each session. The boys looked at their performance and discussed what was good about it and how they might improve the next time.

5. Feedback - The use of video review as well as constant TE review and verbal evaluation for the students offered consistent feedback on performance. Praise and edible rewards were also given in a partial

reinforcement design outlined by Chapin and Dyck (1976).

Post-intervention Testing - Both Group One and Group Two underwent nine sessions of videotaping after the intervention period was finished. These sessions were conducted in the same manner as those used to establish baselines and under the same conditions. Again each videotaping was coded by the experimenter for the seven established behaviors. This allowed for a comparison of these post-intervention behaviors with baseline ones to take place.

Probe Test - Five weeks after the end of the experiment one follow up probe was conducted for each group following the same format as the post-intervention testing. This provided an opportunity to examine the durability of the training program.

Coding Procedures

All verbalizations for each subject were transcribed for all videotaped sessions. In accordance with the guidelines set out in Appendix D the four measures which relied on speech - task-relevant speech, task-irrelevant speech, and positive and negative evaluation of performance - were then coded for each subject from this written copy. A separate item could be assigned more than one code as can be seen in a sample session for Subject 4 in Appendix D. The non-verbal measures - time on task and positive and negative gestures - were determined by direct observation of each taped session for each subject. Time on task was measured with a stop watch recording relevant behavior for two five second intervals each minute, from 25 to 30 seconds and then again from 55 to 60 seconds. If the subject was attending to the task for any amount of that five second period, he was recorded as being on task. A sample session determining percentage of time on task for Subject 2 is found in Appendix D. Each video-session was monitored to record any behaviors

displayed by the subjects which would be classified as positive or negative non-verbal gestures as set out by the guidelines in Appendix D. This transcript was then coded for each subject for all baseline, post-intervention, and probe sessions. An example of one session for Subject 1 is found in Appendix D.

Chapter Four

Results

The results of this study were concerned with two main areas. First of all, a comparison of the three learned helplessness assessments for both pre- and post-intervention was made. Secondly, a comparison between the baseline measures of the seven targeted behaviors and post-intervention testing was accomplished.

Rater Reliability

The transcripts from all verbalizations from two baseline and two post-treatment sessions were examined independently by the experimenter and a research assistant for each of the seven targeted behaviors. Each verbalization was assigned by each rater to one of the following four categories; task-relevant, task-irrelevant, positive or negative self-evaluation of performance. There was 100 percent agreement between raters on all four measures. On-task behaviors and positive and negative non-verbal behaviors were assessed from videotapes by both judges over four sessions. On-task behavior was calculated by timing a five-second period with a stop watch in the middle and another at the end of each minute of the twenty minute session. On-task behavior yielded 95 percent agreement between raters while for non-verbal behavior inter-judge reliability was 88 percent.

Learned Helplessness Assessments

1. Perseverance Following Failure - The format for this assessment

followed that presented by Weisz (1979). First of all perseverance following failure was measured by calculating the ratio of time spent on an unsolvable maze to that spent on a solvable one. These ratios were calculated separately for pre- and post-treatment assessments, and the comparison of these two measures is found in bar graph form in Figure 2. Here it may be seen that all subjects increased the proportion of time spent on the unsolvable task from pre- to post-intervention. Secondly, the maze choices made by each subject during a free time period during pre- and post-treatment were recorded and compared (see Table 1). According to Dweck and Bush (1976) learned helpless students are less likely to persevere at a failed task than mastery-oriented students. During pre-testing all six subjects picked the solvable maze when given a choice during free time. This, again, points to the learned helpless mode of learning shown by all six students. In the post-intervention assessment, during a free time period, five out of the six subjects chose the maze which they had failed at earlier. Only Subject 4 picked the solvable maze at this time.

2. Personal Attribution Assessment - After being taught the attribution concepts with the use of pictures and puppets, each student was asked to give reasons for his success or failure at a maze task. Attributions denoting non-helpless behavior were awarded a plus while those indicating helpless behavior were designated with a minus. Mastery-oriented students attribute success to ability and failure to lack of effort (Dweck, 1975). Since it was hoped to change the learned helpless students' attributions in this study to resemble those of mastery-oriented students, statements which attributed success to ability or effort received a plus rating. On the other hand, learned helpless students most often attribute success to luck or ease of task, while failure is often seen to be due to a lack of ability (Abramson, Seligman, & Teasdale,

FIGURE LEGEND:

FIGURE 2

Perseverance Following Failure Assessment: A ratio (T_s/T_i) was calculated for each subject's performance before and after treatment, wherein time spent on the solvable maze (T_s) was expressed as a ratio of the time spent on the unsolvable maze (T_i). Notice that following training, there was an increase in the proportion of time spent on the impossible task in all subjects.

Figure 2
Perseverance Following Failure Assessment

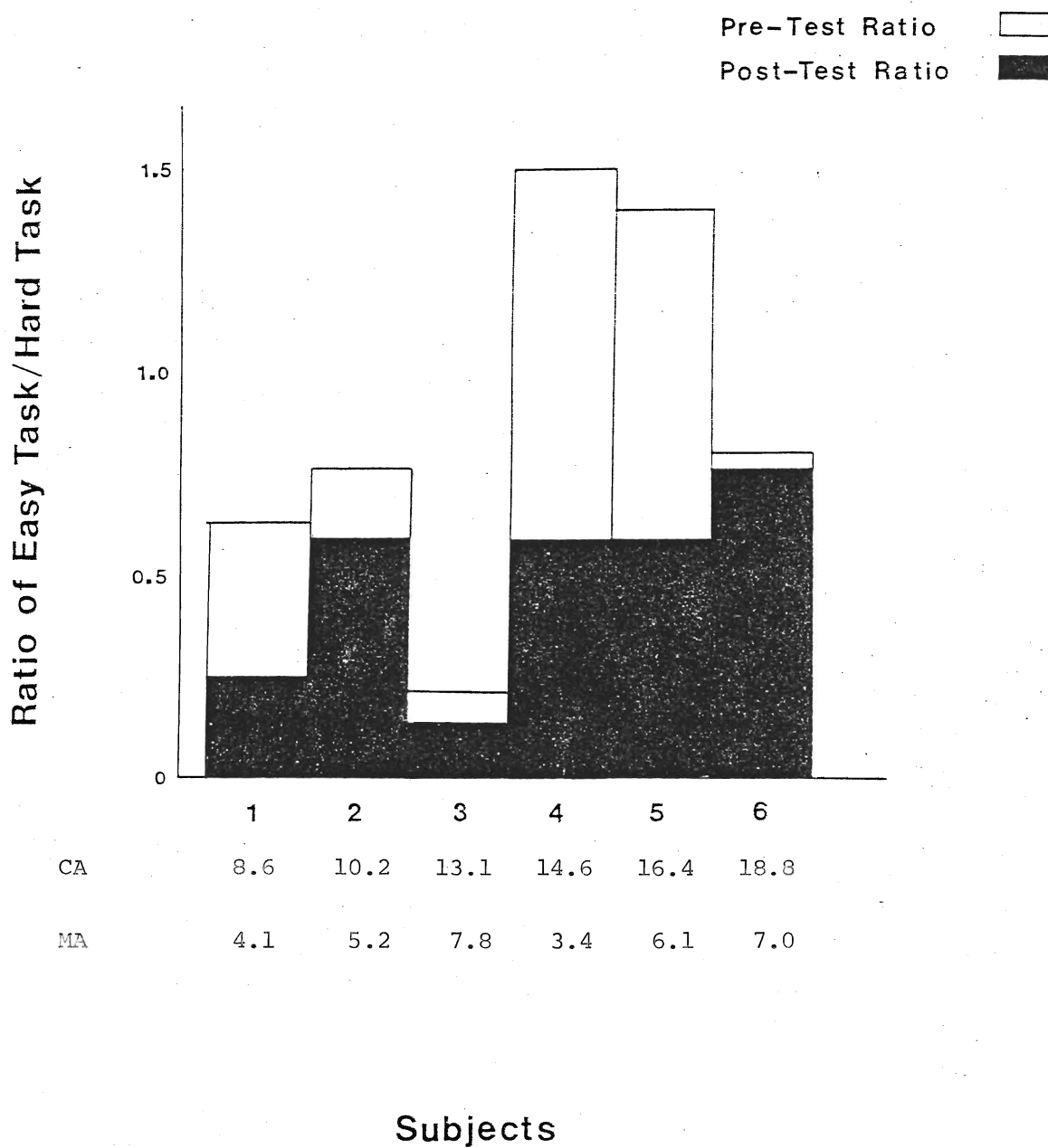


TABLE 1
Perseverance Following Failure Assessment

<u>Subject</u>	<u>MAZE CHOICE</u>	
	<u>Pre-Intervention</u>	<u>Post-Intervention</u>
1	Solvable	Unsolvable
2	Solvable	Unsolvable
3	Solvable	Unsolvable
4	Solvable	Unsolvable
5	Solvable	Solvable
6	Solvable	Unsolvable

1978). Attributions of this sort received a negative rating. The results of both pre- and post-intervention assessments are found in Table 2. A score indicating the amount of change seen in each subject is also given. Five out of the six subjects received a -2 score in the pre-testing assessment which is the highest learned helpless score possible. Three of these students chose lack of ability as the reason for failure, an attribution both internal and stable. It should be noted that, while two subjects scored a 0 and -2 rating respectively in the post-testing session, none of the six subjects chose lack of ability as a reason for failure. All but one student moved from a learned helpless frame of reference when discussing attributions for success and failure to that held by mastery-oriented learners.

3. Perceived Influence Questionnaire - Five items from the Perceived Influence Questionnaire given by Weisz (1979) were scored so that learned helpless replies received a 0 weighting while non-learned helpless replies received a score of 1. The results of this questionnaire are found in Table 3 and the pre-treatment test again shows clearly that each of the subjects could be classified as learned helpless. Four out of the six students scored 0 on this assessment, the highest possible learned helpless score, while the other two had the second highest score of 1. After the intervention, post-testing showed a substantial increase in scores obtained by all subjects.

Analyses of Targeted Behaviors

Task-Relevant/Task-Irrelevant Speech-

A graphical analysis of task- relevant and task-irrelevant behaviors is presented in Figure 3. Evidence of positive changes - changes related to increases in work-related comments and to reductions in irrelevant, distracting speech - can be found for five of the six subjects. In five

Table 2.

Personal Attribution Assessment: Subject's Self-rating
of Performance

<u>Subject</u>	<u>Maze</u>	<u>Pre-intervention</u>		<u>Post-intervention</u>		<u>Change</u>
		<u>Attribu- tion</u>	<u>Score</u>	<u>Attribu- tion</u>	<u>Score</u>	
1	Solvable	lucky	-1	tried hard	+1	+2
	Unsolvable	not smart	<u>-1</u> -2	too hard	<u>-1</u> 0	
2	Solvable	easy	-1	was smart	+1	+4
	Unsolvable	not smart	<u>-1</u> -2	didn't try hard	<u>+1</u> +2	
3	Solvable	easy	-1	tried hard	+1	+4
	Unsolvable	not smart	<u>-1</u> -2	didn't try hard	<u>+1</u> +2	
4	Solvable	lucky	-1	easy	-1	0
	Unsolvable	unlucky	<u>-1</u> -2	too hard	<u>-1</u> -2	
5	Solvable	was smart	+1	was smart	+1	+2
	Unsolvable	too hard	<u>-1</u> 0	didn't try hard	<u>+1</u> +2	
6	Solvable	easy	-1	was smart	+1	+4
	Unsolvable	too hard	<u>-1</u> -2	didn't try hard	<u>+1</u> +2	

mastery-oriented answers were rated +
learned helpless answers were rated -

TABLE 3Perceived Influence Questionnaire

<u>Subject</u>	<u>Pre-Intervention</u>	<u>Post-Intervention</u>	<u>Change</u>
1	0	3	+3
2	0	4	+4
3	0	3	+3
4	0	4	+4
5	1	3	+2
6	1	4	+3

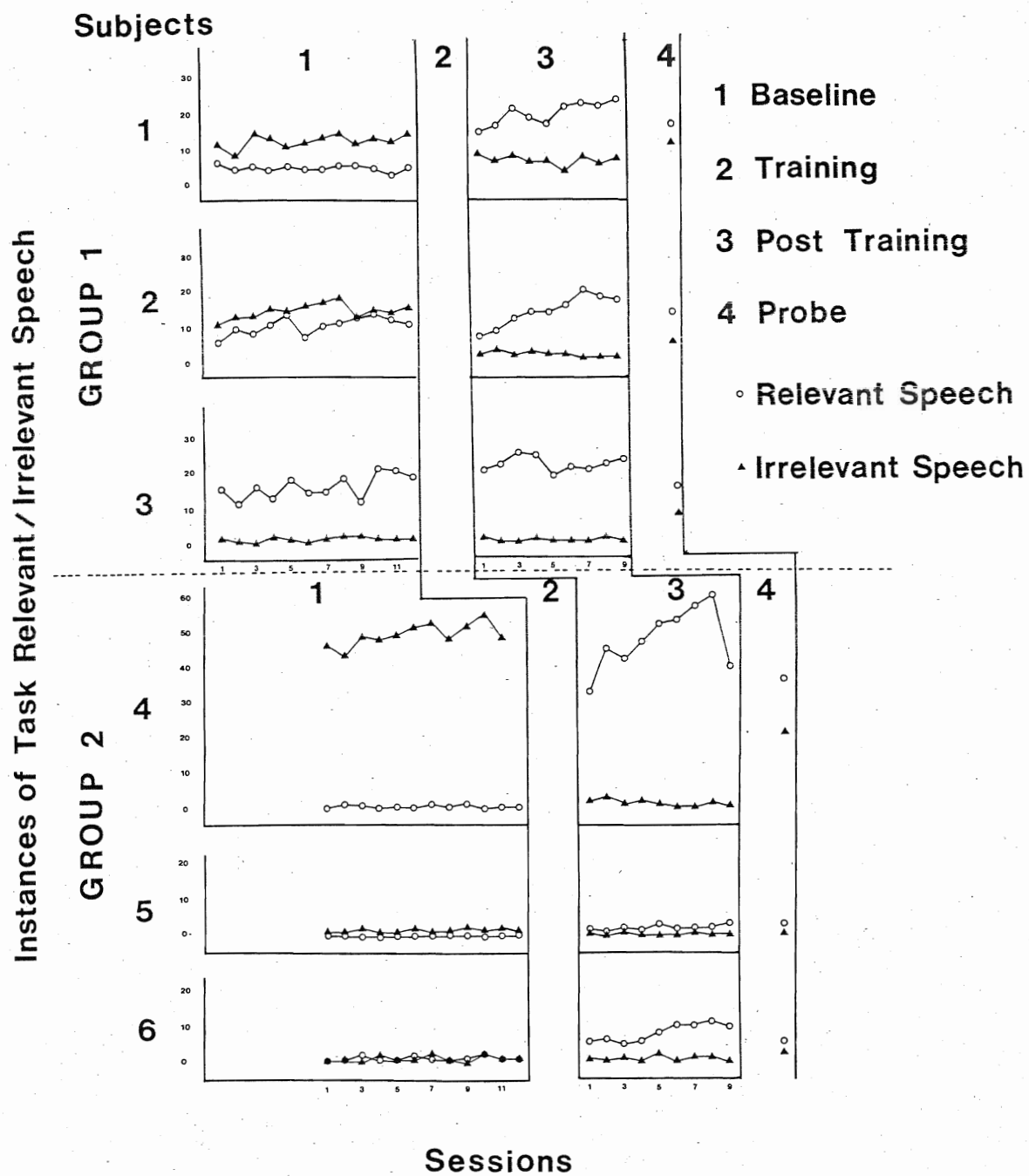
Maximum score = 5

FIGURE LEGEND:

FIGURE 3

Graphical Analysis of Task Relevant/Irrelevant Speech: The performance of each subject was plotted separately for each of three testing periods on both task relevant and task irrelevant measures. The stability of baseline performance was established, changes were assessed during the post-training interval, and the durability of the intervention was shown by the probe testing. Comparing task relevant to task irrelevant speech, it is evident that there was an increase in task relevant speech in all subjects and a decrease in irrelevant speech in all three subjects for whom irrelevant speech was initially a problem.

Figure 3



subjects task-irrelevant behaviors outnumbered task-relevant utterances during baseline assessments, while task-relevant comments outnumbered irrelevant ones for all six subjects during post-training. For Subject 3 relevant speech was more frequent than irrelevant speech both before and after training. There was quite a wide range of change over all subjects typified by comparing Subject 4 and 5. Subject 4 initially showed virtually no task-relevant speech and a great deal of task-irrelevant speech. Following training this situation was almost completely reversed. Subject 5, on the other hand, showed little evidence of speech of any kind either before or after training, although the few instances of speech tended to change from task-irrelevant to task-relevant after intervention, thus showing the same pattern of reversal but to a much lesser degree. In fact, this reversal pattern in which a predominance of task-irrelevant speech gives way to task-relevant speech after training holds true in five out of the six subjects. A single post-testing or probe session (Figure 3) conducted five weeks after the end of the post-training assessment showed that the predominance of task-relevant over irrelevant speech had persisted in all subjects. In most cases there was some degree of attenuation noted at follow-up, but the pattern established during training remained intact.

Positive/Negative Verbal Evaluation of Performance-

Visually, the comparison between positive and negative verbal self-evaluation of performance found in Figure 4 closely resembles that noted in Figure 1 for task-relevant and -irrelevant verbalizations. In Figure 4 it will be noted that during baseline measurements negative verbal self-reference statements outnumbered positive ones for every subject. Examining post-training assessment will show that this situation is reversed for every subject such that, positive verbal utterances were more frequent than negative evaluations. This change in pattern is

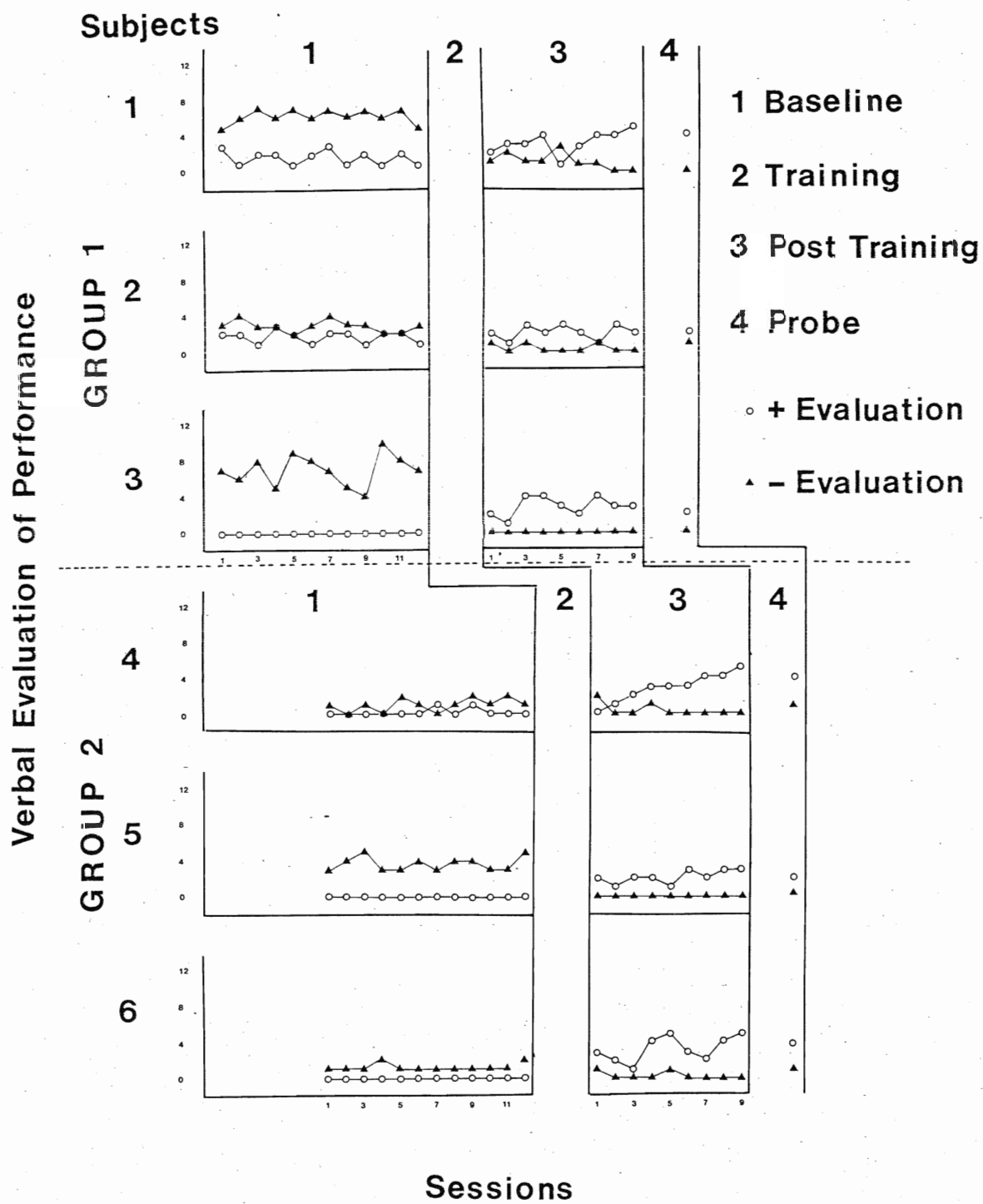
FIGURE LEGEND:

FIGURE 4

Graphical Analysis of Positive/Negative Verbal Evaluation of Performance: The performance of each subject was plotted separately for each of the three testing periods on both positive and negative verbal evaluations of performance. The stability of baseline performance was established, changes were assessed during the post training interval, and the durability of the intervention was shown by the probe testing.

Comparing positive and negative verbal evaluations of performance, it is evident that there was an increase in positive verbal evaluation and a decrease in negative verbalizations for all six subjects in this study.

Figure 4



particularly notable since baseline testing showed that four of the six participants did not utter a single positive self-reference statement during this period. During post-training not only were positive verbalizations increased but negative statements decreased in both absolute and relative terms. In fact, two subjects showed no negative self-verbalizations after training, and two others approached that level of performance. Here too, the probe session, (Figure 4) conducted five weeks after the completion of the post-testing period, showed that the effects of training persisted beyond the duration of the main study. In sum, Figure 4 gives strong evidence of the efficacy of the treatment procedures.

Positive/Negative Non-Verbal Gestures-

The most striking feature of Figure 5 is the complete absence of positive, self-referent gestures on the part of all subjects during baseline assessment. Following training there was at least a small increase in positive gestures in all subjects, and a decrease in negative gestures was evident in the graphs plotted for four of the six participants. The remaining two subjects showed no change, for neither demonstrated any negative gestures either before or after treatment. Comparing post-training and probe sessions will show that the changes following treatment appear quite stable - there was less evidence of a movement towards baseline levels for both positive and negative gestures than was seen for any of the other dependent measures. Once again, these data are consistent with the prediction of positive changes following the administration of the intervention program.

Proportion of Time Spent on Task-

In looking at the graphical analysis of time on task in Figure 6 it can be seen that each subject showed an improvement in attendance to their work from baseline to post-training measurements. This enhancement of

FIGURE LEGEND:

FIGURE 5

Graphical Analysis of Positive/Negative Non-verbal Gestures:

The performance of each subject was plotted separately for each of three testing periods on both positive and negative non-verbal gestures. The stability of baseline performance was established, changes were assessed during the post training interval, and the durability of the intervention was shown by the probe testing.

Comparing baseline positive and negative non-verbal gestures, it can be seen that while not one of the six subjects engaged in any positive gestures during work time, four of the six exhibited some negative gesturing. This pattern of behavior was reversed after the intervention. The two students who initially showed no gesturing of either type, showed some positive non-verbal gestures following training.

Figure 5

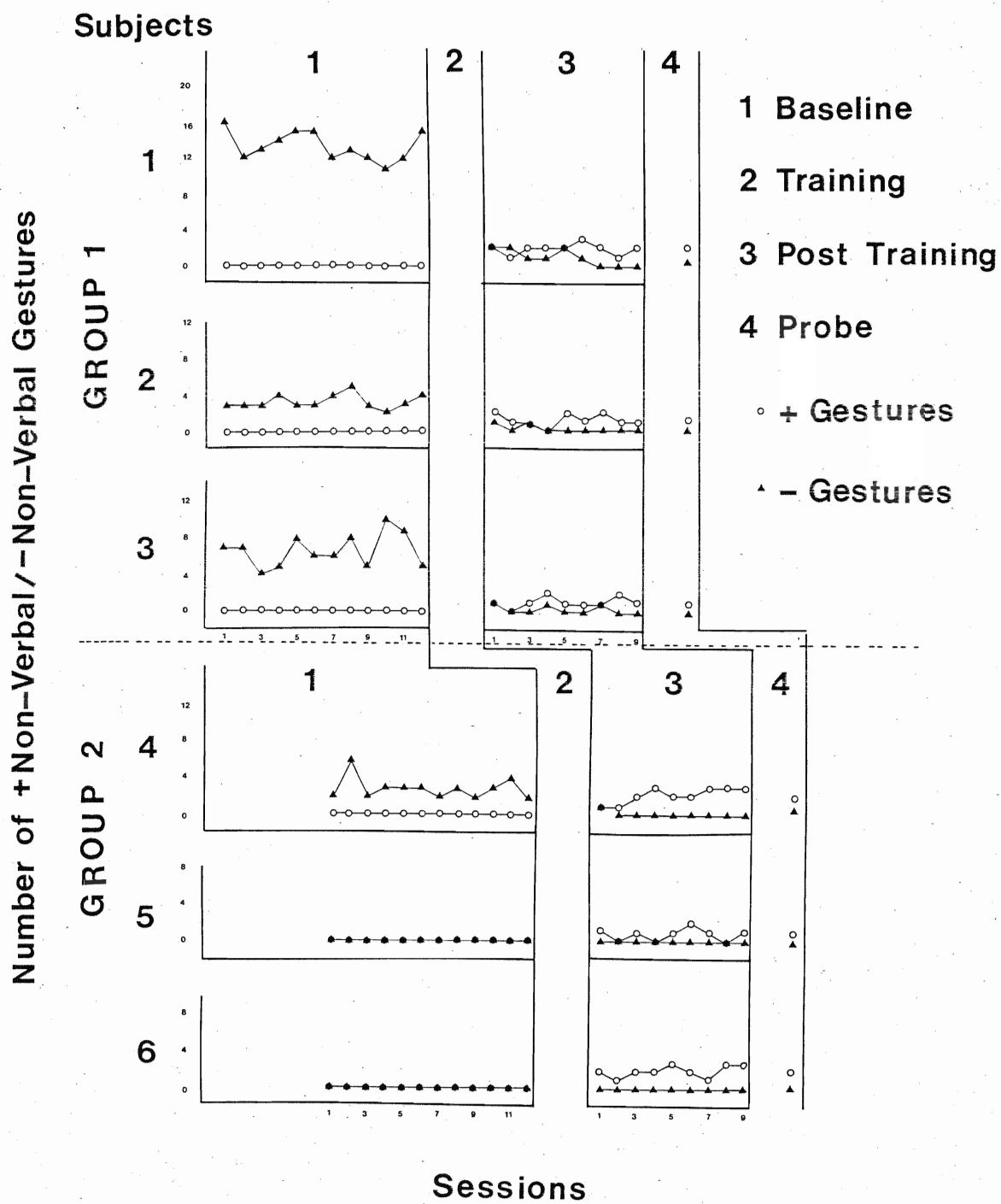


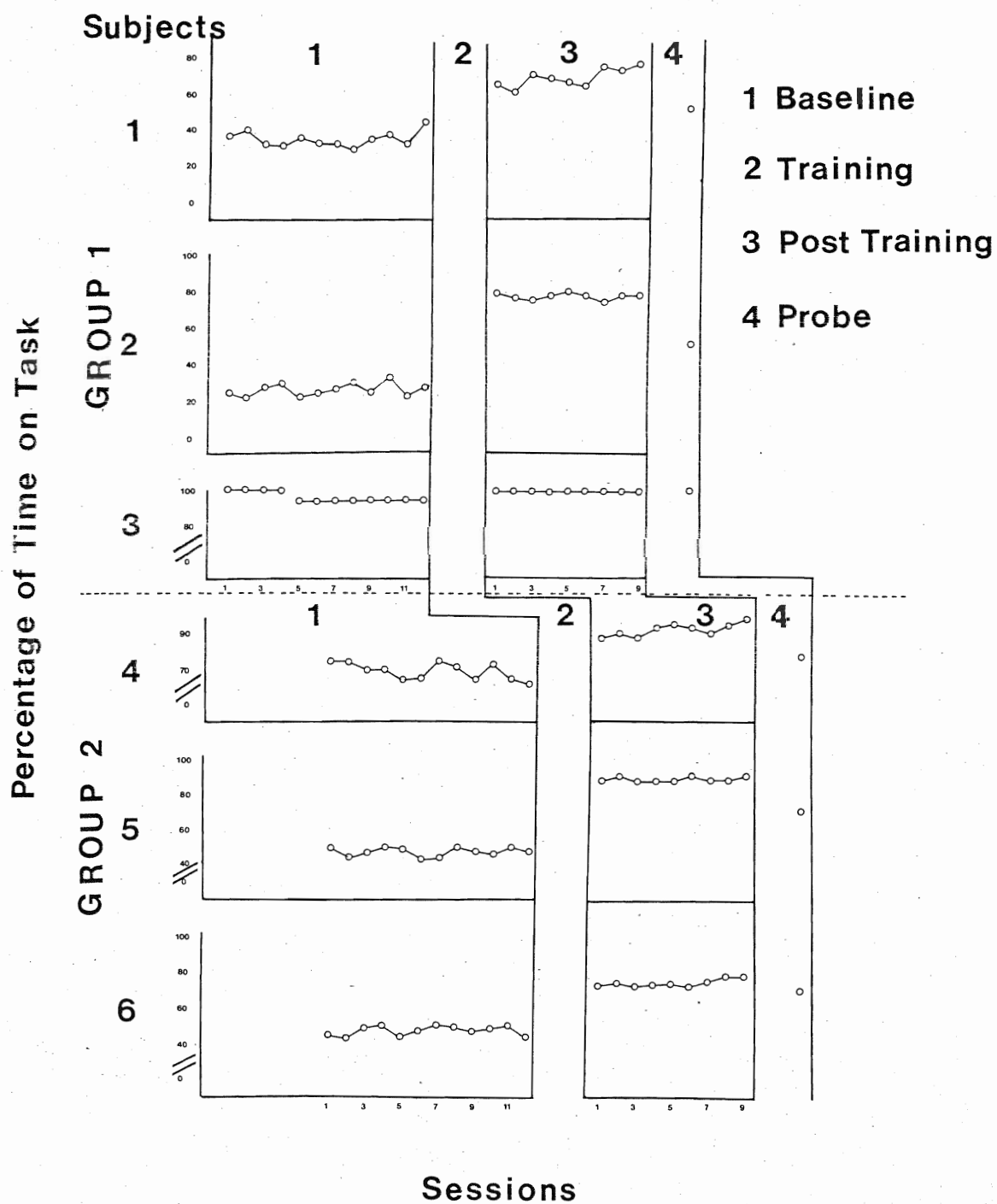
FIGURE LEGEND:

FIGURE 6

Graphical Analysis of Time on Task: The performance of each subject was plotted separately for each of three testing periods on time on task. The stability of baseline performance was established, changes were assessed during the post training interval, and the durability of the intervention was shown by the probe testing.

Five out of the six subjects showed an increase in percentage of time spent on task after the intervention had been applied.

Figure 6



performance was still evident during the probe session (Figure 6) in all subjects, although to a lesser extent. The extent of improvement varied considerably across subjects. Subject 2 more than doubled his percentage of time on task from under thirty percent to over seventy percent, while change in Subject 3 was limited to a few points. According to the criteria established for on-task behavior, Subjects 3 and 4 obtained a high percentage in this area during baseline recording. For Subject 3 a ceiling effect can be noted during baseline and post-training sessions - he rarely digressed from the task. However, what the graph was unable to show the observer is that both these students exhibited behaviors which might well interfere with their ability to learn. Subject 4 engaged in constant sing-song activity as well as bouncing behavior, while subject 3 became extremely agitated and shook when he was unable to perform a task. The intervention concentrated on reducing these behaviors, and an improvement was seen in both students during post-training assessment.

Age Range Results

One of the concerns of this study was to examine the age range of mentally retarded students who might suffer from learned helplessness and to assess the appropriateness of a cognitive intervention package for reducing learned helplessness in a wide range of MAs. The CA range of the six subjects was 8.6 to 18.8 while the MA range was from 3.4 to 7.8. All six students showed improvement in the post-intervention learned helplessness assessments (see Figure 2, Tables 1-3). As well improvement was seen for all subjects from baseline to post-intervention testing for each of the seven targeted behaviors (see Figures 3-6).

Assessment of Intervention Package

The boys appeared to enjoy the program. They looked forward to their

sessions and established a warm relationship with their TEs and experimenter. The change in attitude toward their work was perhaps the most marked difference displayed by these students. The confidence in their ability to do the work was greater as was their perseverance to task. One boy commented near the end of the program that he now liked his work periods because he knew how to start. The TEs were enthusiastic about the progress their students made with this program. Several of them voiced reservations during the initial stages of using the STOP, THINK, and LISTEN cards feeling that the boys were embarrassed by them. TE modelling as well as the use of puppets seemed to eliminate this and by the end all TEs felt that the program enabled the students to focus on a task and that it increased their confidence in their ability to do academic work. Several of the TEs will be at the College of Education next year and have indicated that the CBM approach they have used this year will become part of their teaching style.

Chapter Five

Discussion

The present study was concerned with several issues. First, it examined the viability of using a cognitive behavior modification package to help mentally retarded students overcome learned helplessness and improve their learning strategies. It also tested the feasibility of instructing teachers in the use of such an intervention package. The results from this investigation are encouraging in both areas.

The changes in the three learned helplessness scales from pre-baseline to post-intervention testing show a distinct improvement in the degree of learned helplessness shown by each subject (see Tables 1-3, Figure 2). All attribution responses which were chronic (the most severe type of learned helplessness) (Abramson et al., 1978) changed to either non-helplessness statements or to ones of lesser learned helplessness. Increased perseverance following failure as well as changing maze choice are, according to Weisz (1979) an indication of reduced learned helplessness and these differences can be clearly seen from the results. As previously stated, Weisz (1979, 1981) has shown that mentally retarded students suffer from learned helplessness but no attempt appears to have been made prior to this study to alleviate this condition in the mentally retarded population. This investigation is the first indication that learned helplessness can be overcome in this group. More studies will be needed to refine these initial findings but it appears that the lead taken by investigators working with learning disabled students (Pearl et al., 1980; Thomas & Pashley, 1982) might well be a suitable starting place for

anyone wishing to help mentally retarded students overcome learned helplessness. One of the key components to much of this research is changing the attributions a student holds for success and failure. This study has substantiated the work done by Dweck and her co-workers with non-retarded subjects (Dweck, 1975; Dweck & Goetz, 1978; Diener & Dweck, 1978) and shows that the learned helpless attributions held by some mentally retarded students can be changed to be more like those of mastery-oriented learners. There appeared to be little problem in mentally retarded students grasping any of the needed attribution concepts. Including the idea of trying harder helped to improve persistence to task as well as led to the idea that they were more in control of any learning experience. While this study supported the view that mentally retarded students are susceptible to learned helplessness (Weisz, 1978, 1980), it questions the finding that more marked learned helplessness occurs at higher MA levels since this syndrome was prevalent across a variety of MA levels in the present investigation. Nevertheless, further research with a larger mentally retarded sample would be required in order to affirm or clarify this issue. Although other studies have shown that younger children are less likely to show helpless characteristics (Kun, 1977; Nicholls, 1978), Rholes et al. (1980) feel that, since learned helplessness is displayed by a wide range of infra-human subjects, there is no reason why a student with a relatively low MA could not also develop this condition. From the above, two related conclusions seem warranted. First, it has been shown that mentally retarded students can benefit from interventions designed to ameliorate learned helplessness. Second, people with low mental ages not only demonstrate learned helplessness but also respond positively to programs aimed at its reduction.

The graphs, depicting the results of this CBM intervention package,

indicate an improvement for all six subjects in the seven targeted measures from baselining to post-intervention testing (see Figures 3-6). However, the test of any study is in the durability and maintenance of these changes. According to Baer et al. (1968) a change may be said to have generality if it remains durable over time, is evident in a variety of settings, and extends to a number of related behaviors. The change seen in this study was maintained over time as made evident by the results shown in the probe session. This study did not lend itself to testing over a variety of settings, although the intervention did include both individual and group sessions. It was not expected that the behavior changes would generalize to the classroom as the teachers used very different techniques from those employed in this intervention. In fact, one school prohibited talking during work periods. Since the changes were seen over all seven targeted behaviors, the third criterion for generality was met. The fact that the intervention was applied to a variety of skill areas may well have helped make the changes more general. These results, then, showed that critics such as Gerber (1983) may have been too hasty in branding CBM as an inconsequential way of dealing with exceptional students. It would appear that research based on the advice laid out in Chapter One by experts (Borkowski & Cavanaugh, 1979; Brown & Campione, 1978; Meichenbaum, 1980) shows promise of ensuring results which will help students improve learning strategies as well as change their self-concepts as learners.

This study has several implications for educators involved in teaching mentally retarded students. While not all mentally retarded students show a learned helplessness style of learning, since many of them often encounter failure experiences, the techniques presented in this package might well help ameliorate or inoculate students from the effects of learned helplessness. Harris (1982) feels that the use of cognitive

behavioral interventions place demands on a classroom teacher. Time must be spent on the "analyses, planning, and implementation procedures required for success" (p.14). A teacher must orchestrate the physical, cognitive, and social environment of her students (Mahoney, 1977) in order to develop and implement the metacognitive skills needed for such an intervention (Meichenbaum & Asarnow, 1979). While there has been difficulty in forming a developmental model for understanding mental retardation, one of the main goals of educators must be to modify those forces that are preventing mentally retarded individuals from maximizing their performance (Gallagher, 1984). The desire to find more effective instructional methods must go hand in hand with effective teaching. If teachers can be shown the worth of CBM, rather than looking on its implementation as an extra burden, it may be seen as a valuable teaching tool and used accordingly. The best way to accomplish this would be for teachers to use any intervention directly in the classroom. This of course would entail educating teachers in much the same way as the present study which trained eight university students to act as TEs. This study showed the feasibility of such an approach.

The findings of this investigation point to several avenues of essential study for the future. While the present application of a CBM intervention package to help overcome learned helplessness in mentally retarded students and improve their learning strategies appears to have been successful, further work must be done in this area in order to substantiate these claims. The program run in this study was made up of a variety of components and it is impossible to determine which parts were essential for its success. In order to determine which variables are critical for success, dismantling studies would need to be carried out. Perhaps the most important future investigations, in the view of this investigator, should involve CBM intervention studies carried out by the

classroom teacher and taking place directly in the classroom as part of regular classroom life. In such a study the teacher and researcher would work hand in hand during the implementation and testing of this intervention not only in an attempt to alleviate learned helplessness but also to develop teaching aids which could be used by other teachers facing similar problems. Whitman et al. (1984) point out that the interaction among educators, cognitive researchers, and cognitive behavior modifiers has gradually increased over the last decade but an even greater involvement is needed if the techniques proven by researchers are to find their way into the classroom. If alleviating learned helplessness in mentally retarded students can be carried out in such a co-operative manner not only would teachers learn effective skills but their students would improve their learning strategies which might well affect their whole outlook on life.

References

- Abramson, L.Y., Seligman, M.E.P., & Teasdale, J.D. (1978). Learned helplessness in humans: Critique and reformulation. Journal of Abnormal Psychology, 87, 49-74.
- Allport, G.W. (1961). Pattern and Growth in Personality. New York: Holt, Rinehart and Winston.
- Aponik, D.A., & Dembo, M.H. (1983). LD and normal adolescents' causal attributions for success and failure at different levels of task difficulty. Learning Disability Quarterly, 6, 31-39.
- Baer, D., Wolf, M., & Risley, T. (1968). Some current dimensions of applied behavior analysis. Journal of Applied Behaviour Analysis, 1, 91-97.
- Balla, D. & Zigler, E. (1978). Personality development in retarded persons. In N. Ellis (Ed.). Handbook of Mental Deficiency (2nd ed.). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.
- Beaudichon, J. (1973). Nature and instrumental function of private speech in problem solving situations. Merrill-Palmer Quarterly, 19, 117-131.
- Benson, J.S., & Kennelly, K.J. (1976). Learned helplessness: The results of

- uncontrolled reinforcements or uncontrolled aversive stimuli. Journal of Personality and Social Psychology, 34 , 139-145.
- Blackman, L.S., & Lyn, A. (1984). Generalization training in the educable mentally retarded: Intelligence and its educability revisited. In P.H. Brooks, R. Sperber & C. McCauley (Eds.), Learning and cognition in the mentally retarded. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Blaess, D. A. (1977). Relative effects of attributional preference, effort verbalizations, and self-reinforcement on children's task persistence. Dissertation Abstracts International. 37 , 7624A.
- Bluestein, V.W. (1967). Factors related to and predictive of improvement in the schools. Psychology in the Schools, 4 , 272-276.
- Bonnington, S. (1983). Verbal self-instruction for the mentally retarded: The missing link. Circular aspects of attitude about control. Paper presented at the Annual International Convention of the Council for Exceptional Children. Detroit, 1-13.
- Borg, W.R. (1981). Applying educational research: A practical guide for teachers. New York: Longmer.
- Borkowski, J.G., & Cavanaugh, J.C. (1979). Maintenance and generalization of skills and strategies by the retarded. In N.R. Ellis (Ed.), Handbook of mental deficiency, psychological theory and research. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Borkowski, J.G., Reid, M.K., & Kurtz, B.E. (1984). Metacognition and

- retardation: Paradigmatic, theoretical, and applied perspectives. In P.H. Brooks, R. Sperber, & C. McCauley (Eds.), Learning and cognition in the mentally retarded. Hillside, New Jersey: Lawrence Erlbaum Associates.
- Butkowsky, I.S., & Willows, D.M. (1980). Cognitive-motivational characteristics of children varying in reading ability: Evidence for learned helplessness in poor readers. Journal of Educational Psychology, 3 , 408-422.
- Bornstein, P.H., & Quevillon, R.P. (1976). The effects of a self-instructional package on overactive preschool boys. Journal of Applied Behavior Analysis, 9 , 179-188.
- Brock, H.B., & Kowitz, G.T. (1980). Learned helplessness in exceptional children. Paper presented at the Annual Conference of the Rocky Mountain Educational Research Association. Oct. 15-17th.
- Brown, A.L., & Campione, J.C. (1978). Permissible inference from the outcome of training studies in cognitive development research. The Quarterly Newsletter of the Institute for Comparative Human Development, 2 , 46-53.
- Budoff, M., & Corman, L. (1976). Effectiveness of a learning potential procedure in improving problem-solving skills of retarded and non-retarded children. American Journal of Mental Deficiency, 81 , 260-264.
- Bugental, D.B., Whalen, C.K., & Henker, B. (1977). Causal attributions of hyperactive children and motivational assumptions of two behavior-change approaches: Evidence for an interactionist position. Child Development,

48 , 874-884.

Canino, F.J. (1981). Learned-helplessness theory: Implications for research in learning disabilities. The Journal of Special Education, 15 , 471-484.

Chan, K.S., & Keogh, B.K. (1974). Interpretation of task interruption and feelings of responsibility for failure. The Journal of Special Education, 8 , 175-178.

Chapin, M., & Dyck, G. (1976). Persistence in children's reading behavior as a function of N length and attribution retraining. Journal of Abnormal Psychology, 85 , 511-515.

Chiang, S.J., Iwata, B.A., & Dorsey, M.F. (1979). Elimination of disruptive bus-riding behavior via token reinforcement on a "distance-based" shedule. Education and Treatment of Children, 2 , 101-109.

Combs, A.W., Richards, A.C., & Richards, F. (1976). Perceptual Psychology, New York: Harper & Row, Publishers.

Craighead, W.E., Wilcoxon-Craighead, L., & Myers, A.W. (1978). New directions in behavior modification with children. In M. Herson, R.M. Eisler & P.M. Miller (Eds.), Progress in behavior modification (vol. 6). New York: Academic Press.

Crandall, V.C., Katkovsky, W., & Crandall, V.J. (1965). Children's beliefs in their own control of reinforcements in intellectual academic achievement situations. Child Development, 36 , 91-109.

- Cruickshank, W.M. (1947). Qualitative analysis of intelligence test responses. Journal of Clinical Psychology, 3 , 381-386.
- Cuvo, A.J. (1979). Multiple-baseline design in instructional research: Pitfalls of measurement and procedural advantages. American Journal of Mental Deficiency, 84 , 219-228.
- Devellis, R., & McCauley, C. (1979). Perception of contingency and mental retardation. Journal of Autism and Developmental Disorders, 9 , 261-270.
- Devellis, R. (1967). Learned helplessness in institutions. Mental Retardation, 15 , 10-13.
- Diener, C.I., & Dweck, C.S. (1978). An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions following failure. Journal of Personality and Social Psychology, 36 , 451-462.
- Douglas, V.I. (1975). Perceptual and cognitive factors as determinants of learning disabilities: A review paper with special emphasis on attentional factors. In R. M. Knights & D.J. Bakker (Eds.), Neuropsychology of learning disorders: Theoretical approaches. Baltimore: University Park Press.
- Dweck, C.S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. Journal of Personality and Social Psychology, 31 . 674-685.

- Dweck, C.S., & Goetz, T.E. (1978). Attributions and learned helplessness. In H.H. Harvey, W. Ickes, & R.F. Kidd (Eds.), New Directions in Attribution Research. 2, New Jersey: Lawrence Erlbaum Associates.
- Dweck, C.S., & Bush, E.S. (1976). Sex differences in learned helplessness: Differential debilitation with peer and adult evaluators. Developmental Psychology, 12, 147-156.
- Dweck C.S., & Reppucci, N.D. (1973). Learned helplessness and reinforcement responsibility in children. Journal of Personality and Social Psychology, 25, 109-116.
- Ellis, N.R. (Ed.) (1963). Handbook of mental deficiency. New York: McGraw-Hill.
- Ellis, N.R. (Ed.). (1979). Handbook of mental deficiency, psychological theory and research (2nd ed.). Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Fincham, F., & Barling, J. (1978). Locus of control and generosity in learning disabled, normal achieving, and gifted children. Child Development, 49, 530-533.
- Floor, L., & Rosen, M. (1975). Investigating the phenomenon of helplessness in mentally retarded adults. American Journal of Mental Deficiency, 79, 565-572.
- Fosco, F., & Geer, J.H. (1971). Effects of gaining control over aversive stimuli after differing amounts of no control. Psychological Reports,

29 , 1153-1154.

Fowler, J., & Peterson, P. (1981). Increasing reading persistence and altering attributional style of learned helpless children. Journal of Educational Psychology, 73 , 251-260.

Gallagher, J.J. (1984). The search for developmental models for understanding mental retardation. In P.H. Brooks, R. Sperber & C. McCauley (Eds.), Learning and cognition in the mentally retarded. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Gatchel, R.J., & Proctor, P. (1976). Physiological correlates of learned helplessness in man. Journal of Abnormal Psychology, 85 , 27-34.

Gerber, M.N. (1983). Learning disabilities and cognitive strategies: A case for training or constraining problem solving? Journal of Learning Disabilities, 16 , 255-260.

Gergen, K. (1971). The concept of self. New York: Holt, Rinehart & Winston.

Grimes, L. (1981). Learned helplessness and attribution theory: Redefining children's learning problems. Learning Disability Quarterly, 4 , 91-100.

Grossman, H.J. (Ed.). (1973). Manual of terminology and classification in mental retardation. Washington, D.C.: American Association of Mental Deficiency.

Hanusa, B.H., & Schultz, R. (1977). Attributional mediators of learned

- helplessness. Journal of Personality and Social Psychology, 35 , 602-611.
- Harris, K.R. (1982). Cognitive-behavior modification: Application with exceptional students. Focus on Exceptional Children, 15 , 2-16.
- Harvey, J.H., & Weary, G. (1981). Perspectives on attributional processes. Dubuque, Iowa: Wm. C. Brown Co.
- Hersen, M., & Barlow, D.H. (1976). Single case experimental designs: Strategies for studying behavior change. New York: Pergamon Press.
- Hiroto, D.S. (1974). Locus of control and learned helplessness. Journal of Experimental Psychology, 102 , 187-193.
- Hiroto, S.A., & Seligman, M.E.P. (1975). Generality of learned helplessness in man. Journal of Personality and Social Psychology, 31 , 311-327.
- Hollon, S.D., & Kendall, P.C. (1979). Cognitive-behavioral interventions: Theory and procedure. In P.C. Kendall & S.D. Hollon (Eds.), Cognitive-behavioral interventions: Theory, research and procedures. New York: Academic Press.
- Horner, R.D. & Baer, D.M. (1978). Multiple probe technique: A variation of the multiple baseline. Journal of Applied Behavior Analysis, 11 , 189-196.
- Ingalls, R.P. (1978). Mental retardation: the changing outlook. New York: John Wiley & Sons.

- Janicki, M.P., Castellani, P.J., & Norris, R.G. (1983). Organization & administration of service delivery systems. In J.L. Matson & J.A. Mulick (Eds.), Handbook on mental retardation. New York: Pergamon Press.
- Kendall, P.C., & Hollon, S.D. (1979). Cognitive-behavioral interventions: Overview and current status. In P.C. Kendall & S.D. Hollon (Eds.), Cognitive-behavioral interventions: Theory, research and procedures. New York: Academic Press.
- Kendall, P.C., Borkowski, J.G., & Cavanaugh, J.C. (1980). Metamemory and the transfer of an interrogative strategy for EMR children. Intelligence, 4, 255-270.
- Klein, W.L. (1964). An investigation ;of the spontaneous speech of children during problem-solving. (Doctoral dissertation, The University of Rochester, 1964). Dissertation Abstracts, 25, 2031.
- Klein, D.C., & Seligman M.E.P. (1976). Reversal of performance deficits in learned helplessness and depression. Journal of Abnormal Psychology, 85, 11-26.
- Kleinhammer-Tramill, P.J.; Tramill, J.L.; Schrepel, S.N., & Davis, S.F. (1983). Learned helplessness in learning disabled adolescents as a function of noncontingent rewards. Learning Disability Quarterly, 6, 61-66.
- Kun, A. (1977). Development of the magnitude-covariation and compensation schemata in ability and effort attributions of performance. Child

Development, 48 , 862-873.

Kratochwill, T.R. (Ed.).(1978). Single subject research. Strategies for evaluating change. New York: Academic Press.

Krupski, A. (1979). Are retarded children more distractible? Observational analysis of retarded and nonretarded children's classroom behaviour.

American Journal of Mental Deficiency, 84 , 1-10.

Kurtz, P.D., & Neisworth J.T. (1976). Self-control possibilities for exceptional children. Exceptional Children, 42 , 212-217.

Leahy, R.L., Balla, D., & Zigler, E. (1982). Role-taking , self-image, and imitativeness of mentally retarded and nonretarded individuals. American Journal of Mental Deficiency, 4 , 372-379.

Leland, H. (1983). Adaptive behavior scales. In J.L. Matson & Mulick (Eds.), Handbook on mental retardation. New York: Pergamon Press.

Litrownik, A.J., & Steinfeld, B.I. (1982). Developing self-regulation in retarded children. In P. Karoly & J.J. Steffen (Eds.), Improving children's competence: Advances in child behavioral analysis and therapy (Vol.1). Lexington, Mass.: D.C. Heath.

Leon, J.A., & Pepe, H. (1978). Self-instructional training: Cognitive behavior modification as a resource room strategy. Behavior Therapy, 9 , 245-255.

MacMillan, D.L. (1971). Special education for the mildly retarded: Servant or

savant? Focus on Exceptional children, 2 , 1-11.

Mahoney, M.J. (1974). Cognition and behavior modification . Cambridge, Mass.: Bullinger Publishing Company.

Mahoney, M.J., & Mahoney, K. (1976). Self-control techniques with the mentally retarded. Exceptional Children, 42 , 338-339.

Mahoney, M.J. (1977). Reflections on the cognitive learning trend in psychotherapy. American Psychologist. 32 , 5-13.

Mark S.F. (1979). To succeed or not to succeed: A critical review of issues in learned helplessness. Contemporary Educational Psychology, 8 , 1-19.

Matson, J.L., & Mulick, J.A. (Eds.). (1983). Handbook on mental retardation. New York: Pergamon Press.

Meichenbaum, D. (1980). Cognitive behavior modification with exceptional children: A promise yet unfulfilled. Exceptional Education Quarterly, 1 , 83-87.

Meichenbaum, D. (1977). Cognitive behavior modification: An integrative approach . New York: Plenum Press.

Meichenbaum, D. & Asarnow, J. (1979). Cognitive-behavioral modification and metacognitive development: Implications for the classroom. In P.C. Kendall & S.D. Hollon (Eds.), Cognitive-behavioral interventions: Theory research, and procedures. New York: Academic Press.

Meichenbaum, D., & Goodman, T. (1971). Training impulsive children to talk to

- themselves. Journal of Abnormal Psychology, 77 , 115-126.
- Moore, B.L. & Bailey, J.S. (1973). Social punishment in the modification of a pre-school child's "autistic-like" behavior with a mother as therapist. Journal of Applied Behavior Analysis. 6 , 497-507.
- Morgenstern, M. (1983). Standard intelligence tests and related assessment techniques. In J.L. Matson & Mulick (Eds.), Handbook on mental retardation. New York: Pergamon Press.
- Murphy, R.J. & Bryan, A.J. (1980). Multiple-baseline and multiple-probe designs: Practical alternatives for special education assessment and evaluation. Journal of Special Education, 14 , 325-335.
- Nicholls, J.G. (1978). The development of the concepts of effort and ability, perception of academic attainment and the understanding that difficult tasks require more ability. Child Development, 49 , 800-814.
- O'Leary, S.G. (1980). A response to cognitive training. Exceptional Education Quarterly, 1 , 89-94.
- Partington, J.T. (1973). Case study in a human science paradigm. In H.M. Simpson (Ed.), Introduction to research methods in psychology. Ottawa: Carleton University.
- Pearl, R. (1982). LD children's attributions for success and failure: A replication with a labelled LD sample. Learning Disability Quarterly, 5 , 173-176.

Pearl, R., & Bryan, T. (1982). Mothers attributions for their learning disabled child's successes and failures. Learning Disability Quarterly, 5 , 53-56.

Pearl, R., Bryan, T., & Donahue, M. (1980). Learning disabled children's attributions for success and failure. Learning Disability Quarterly, 3, 3-9.

Piers, E.V. & Harris, D.B. (1964). Age and other correlates of self-concept in children. Journal of Educational Psychology, 55 , 91-95.

Purkey, W.W., Raheim, A., & Cage, B.N. (1983). Self-concept as learner: An overlooked part of self-concept theory. Humanistic Education and Development, 52-57.

Quelitch, R. H., & Gray, J.D. (1974). Purposeful activity for the PMR. Mental Retardation, 12 , 28-29.

Raber, S., & Weisz, J.R. (1979). Learned helplessness and teacher-to-child feedback among mentally retarded and nonretarded children. Unpublished manuscript cited in Weisz, J.R. Perceived control and learned helplessness among mentally retarded and nonretarded children: A developmental analysis. Developmental Psychology. 15 , 311-319.

Rholes, W.S., Blackwell, J., Jordan, C., & Walters, C. (1980). A developmental study of learned helplessness. Developmental Psychology, 16 , 616-624.

- Robinson, H.B., & Robinson, N.M. (1976). The mentally retarded child. New York: McGraw-Hill.
- Roth, S., & Kubal, L. (1975). The effects of non-contingent reinforcement of tasks of differing importance: Facilitation and learned helplessness effects. Journal of Personality and Social Psychology, 32 , 680-691.
- Roth, S., & Bootzin, R.R. (1974). The effects of experimentally induced expectancies of external control: An investigation of learned helplessness. Journal of Personality and Social Psychology, 29 , 253-263.
- Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80 , (1, Whole No. 609).
- Rubin, K.H. (1979). The impact of the natural setting on private speech. In G. Zivin (Ed.), The development of self-regulation through private speech. New York: Wiley & Sons.
- Sabatino, D.A., Miller, P.F., & Schmidt, C. (1981). Can intelligence be altered through cognitive training? Journal of Special Education, 15 , 125-144.
- Scibak, J., Whitman, T., & Johnson, M. (1980). Increasing appropriate classroom behavior in educable retarded children. Journal of Applied Behavioral Analysis, 12 , 41-54.
- Seligman, M.E.P. (1974). Depression and learned helplessness In R.J. Friedman

and M.M. Katz (Eds.), The psychology of depression: Contemporary theory and research. Halsted.

Seligman, M.E.P. (1975). Helplessness. San Francisco: Freeman.

Seligman, M.E.P., & Maier, S.F. (1967). Failure to escape traumatic shock. Journal of Experimental Psychology, 74 , 1-9.

Shipe, D. (1971). Impulsivity and locus of control as predictors of achievement and adjustment in mildly retarded and borderline youth. American Journal of Mental Deficiency, 76 , 12-22.

Stainbeck, W. & Stainbeck, S. (1983). A review of research on the educability of profoundly retarded persons. Education and Training of the Mentally Retarded, 18 , 90-100.

Stamelatos, T., & Mott, D.W. (1983). Learned helplessness in persons with mental retardation: Art as a client-centered treatment modality. Arts in Psychotherapy, 10 , 241-249.

Stokes, T., & Baer D. (1977). An implicit technology of generalization. Journal of Applied Behavior Analysis, 10 , 27-34.

Sulzer-Azaroff, B., & Mayer, G. (1977). Applying behavior-analysis procedures with children and youth. New York: Holt, Rinehart, & Winston.

Suran, B.G., & Risso, J.V. (1979). Special children: An integrative approach. Glenview, Illinois: Scott, Foresman & Company.

Tawney, J., & Gast, I. (Eds.). (1984). Single subject research in special education. New York; Charles Merrill.

Thomas, A. (1979). Learned helplessness and expectancy factors: Implications for research in learning disabilities. Review of Educational Research, 49 , 208-221.

Thomas, A., & Pashley, B. (1982). Effects of classroom training on LD students' task persistence and attributions. Learning Disability Quarterly, 5 , 133-144.

Thornton, J.W., & Jacobs, P.D. (1971). Learned helplessness in human subjects. Journal of Experimental Psychology, 87 , 367-372.

Tollefson, N., Tracy, D.B., Johnsen, E.P., Buenning, M., Farmer, A., & Barke . (1982). Attribution patterns of learning disabled adolescents. Learning Disability Quarterly, 5 , 14-20.

Townsend, J.C. (1953). Introduction to experimental method. New York: McGraw-Hill.

Weiner, B., & Kukla, A. (1970). An attributional analysis of achievement motivation. Journal of Personality and Social Psychology, 15 , 1-20.

Weiner, B. (1974). Achievement motivation and attribution theory. Morristown, N.J.: General Learning Press.

Weiner, B. (1974). Achievement motivation as conceptualized by an attribution theorist. In B. Weiner (Ed.), Acheivement motivation and

attribution theory. Morristown, N.J.: General Learning Press.

Weisz, J.R. (1979). Perceived control and learned helplessness among mentally retarded and nonretarded children: A developmental analysis. Developmental Psychology, 15 , 311-319.

Weisz, J.R. (1981). Learned helplessness in black and white children identified by their schools as retarded and nonretarded: Performance deterioration in response to failure. Developmental Psychology, 17 , 499-508.

Weisz, J.R. (1982). Learned helplessness and the retarded child. In E. Zigler and D. Balla (Eds.), Mental retardation: The developmental-difference controversy. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Weisz, J. & Zigler, E. (1979). Cognitive development in retarded and non-retarded persons: Piagetian tests of the similar sequence hypothesis. Psychology Bulletin, 86 , 831-851.

Whitman, T.L., & Scibak, J.W. (1979). Behavior modification research with severely and profoundly retarded. In N.R. Ellis (Ed.), Handbook of mental deficiency (2nd ed.). Hillsdale, N.J.: Lawrence Erlbaum Associates.

Whitman, T.L., Burgio, L., & Johnston M. B. (1984). Cognitive behavioral interventions with mentally retarded children. In A.W. Myers & W.E. Craighead (Eds.). Cognitive behavior therapy with children, New York: Plenum Press.

Wortman, C. B., & Brehm, J.W. (1975). Responses to uncontrolled outcomes; An integration of reactance theory and the learned helplessness model. In L. Berkowitz (Ed.), Advances in experimental social psychology. 8 , New York: Academic Press.

Zigler, E. (1969). Developmental versus difference theories of mental retardation and the problem of motivation. American Journal of Mental Deficiency, 73 , 536-556.

Zigler, E., Balla, D., & Watson, N. (1972). Developmental and experiential determinants of self-image disparity in institutionalized and noninstitutionalized retarded and normal children. Journal of Personality and Social Psychology, 23 , 81-87.

Appendices

Appendix	Title	Page
A	Teacher Questionnaire.....	90
	Pupil Behavior Checklist.....	91
B	Attribution Cards.....	93
C	Perceivead Influence Questionnaire.....	101
D	Guidelines for Targeted Behaviors.....	102
	Examples of Coding for Each Targeted Behavior.....	103
E	CBM Intervention Cards.....	105

Appendix A

Teacher Helplessness Scale Questionnaire

The questions below describe specific situations which might arise during a school day. Please read each question with the student's name in mind, then circle ONE of the numbers beneath the question to indicate how you think this particular child will probably behave in the situation. For example, if you feel the child is VERY likely to behave as is described under number 1, then you should circle number 1; if you think he/she would behave in this way but you are not certain, then you should circle a less extreme number 2 or 3.

NAME _____

1. You ask him/her a question during class. The child knows the answer. Is he/she likely to:

1	2	3	4	5	6	7
Give no answer or say "I don't know."			(both are equally likely)	give the answer		

2. You introduce a NEW activity to the class. Although it looks difficult, he/she is, in fact, able to do it alone. Is he likely to:

1	2	3	4	5	6	7
Feel that he/she cannot do it and be reluctant to try.			(both are equally likely)	feel that he/she can do it, and be eager to try.		

3. You scold the child for breaking a rule. In fact, he/she is completely innocent. Is he/she likely to:

1	2	3	4	5	6	7
accept the scolding without protest.			(both are equally likely)	try to point out that he/she is innocent.		

4. You assign everyone some work to do which involves using a pencil. His/her pencil lead is broken. Is he/she likely to:

1	2	3	4	5	6	7
make no effort to remedy the situation.			(both are equally likely)	make an effort to remedy the situation.		

5. He/she needs to go to the restroom. Is he/she likely to:

1	2	3	4	5	6	7
remain at his/her desk and suffer.			(both are equally likely)	ask for permission to go or simply go if permission is not needed)		

6. His/her desk is being kicked unintentionally by another pupil who is rocking his foot back and forth. This is bothering him/her. Is he or she likely to:

1	2	3	4	5	6	7
tolerate the kicking and raise no objection			(both are equally likely)	take some action to stop the kicking.		

7. Suppose you have the entire class a set of tasks in this child's most difficult subject and set aside a period of time each day during which they would work on this project. You promised awards to those who worked most diligently. You made sure that each child received tasks that were well-suited to his/her level of ability, and as far as you were concerned, every child had an equal chance to win an award. When it is time to

begin, this child:

1	2	3	4	5	6	7
Just sits there and		(both are equally		begins the project		
makes little or no		likely)		independently,		
attempt to begin the					requiring little	
project; the teacher must					encouragement.	
help him/her get started						
and keep going.						

8. When he/she begins work on the project:

1	2	3	4	5	6	7
His attempts appear		(both are equally		he is enthusiastic		
half-hearted as though		likely)		as though he believes		
he doesn't believe he					he CAN win an award.	
could ever win an award.						

9. Whenever he/she encounters an obstacle:

1	2	3	4	5	6	7
He gets very dis-		(both are equally		he tries even harder		
couraged and stops		likely)		in an effort to		
trying					overcome the obstacle.	

10. In general, does this child act:

1	2	3	4	5	6	7
Helpless, as if he feels				confident, as if he/she		
he/she is not a very				feels a very effective		
effective person.				person.		

PUPIL BEHAVIOR CHECKLIST

Below is a list of items which describe some children's behavior in school. For each item that describes the child named below DURING THE PAST SCHOOL YEAR, please circle 2 if the item is VERY TRUE or OFTEN TRUE of this child. Circle 1 if the item is SOMEWHAT or SOMETIMES TRUE of the child. If the item is NOT TRUE of the child, circle 0.

CHILD'S NAME _____

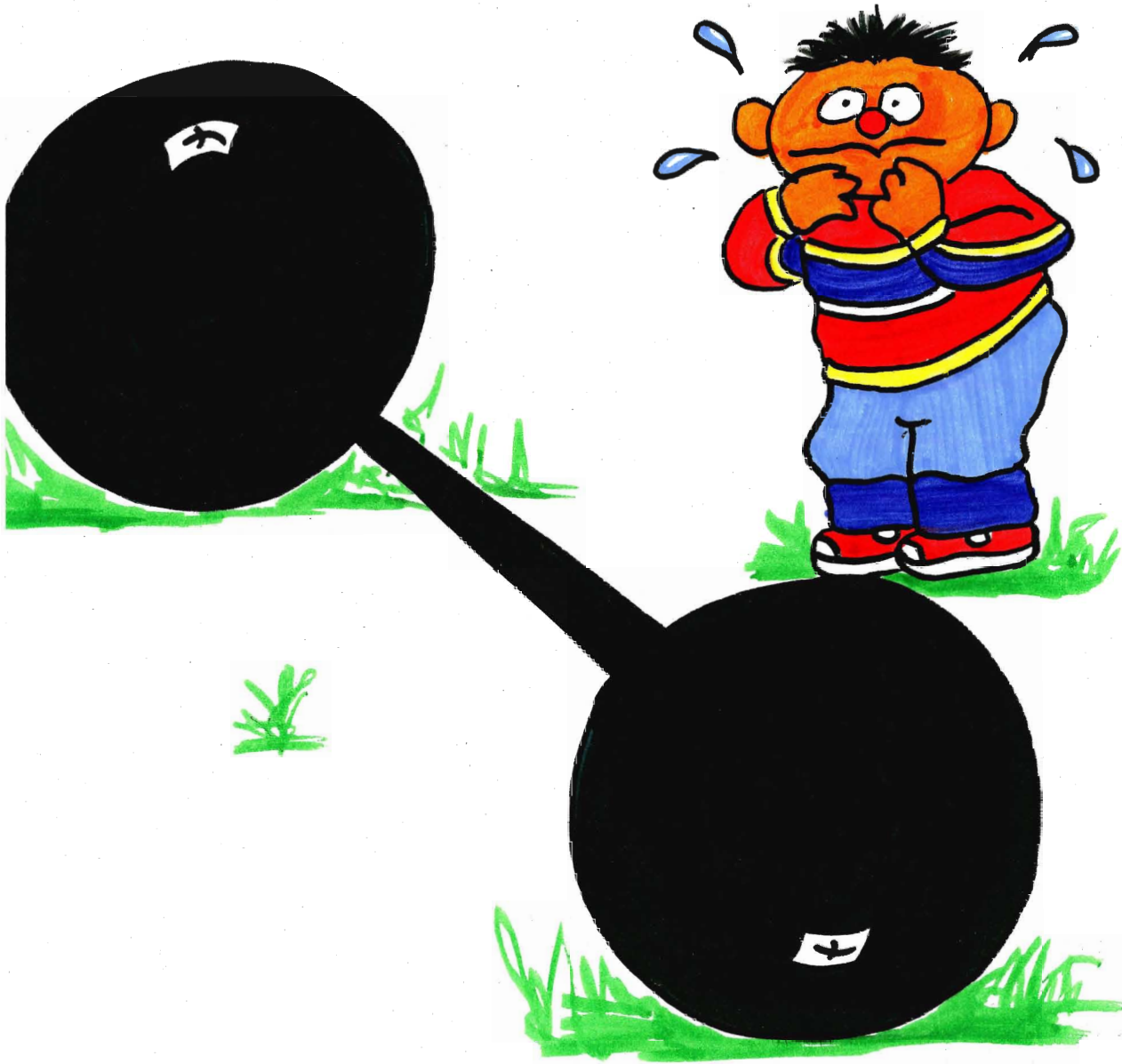
- | | |
|-------------|---|
| (B) 0 1 2 3 | 1. Wants to do easy problems rather than hard ones. |
| (A) 0 1 2 3 | 2. Says things like, "I can't read... I can't do math," etc |
| (B) 0 1 2 3 | 3. Quits before finishing assignments. |
| (B) 0 1 2 3 | 4. Needs a lot of encouragement to get started on a new assignment. |
| (B) 0 1 2 3 | 5. Gives up when the teacher corrects him/her or finds a mistake in his/her work. |
| (B) 0 1 2 3 | 6. Does not bring pencil and paper to when needed. |
| (B) 0 1 2 3 | 7. Asks for help from the teacher, aide, or other students more than necessary. |

- (A) 0 1 2 3 8. Has low self-confidence academically.
- (A) 0 1 2 3 9. Has low self-confidence socially.
- (B) 0 1 2 3 10. When told to begin a new assignment, he/she just sits there, afraid that he/she won't be able to do it.
- (A) 0 1 2 3 11. Says "I can't do it," when he/she has trouble with his/her work.
- (B) 0 1 2 3 12. Asks the teacher to check his/her work more than necessary.
- (B) 0 1 2 3 13. Would rather repeat activities he/she already knows how to do rather than try something new and different.
- (B) 0 1 2 3 14. When the child runs into difficulty, he/gives up and quits trying.
- (A) 0 1 2 3 15. Makes negative or degrading comments about his/her own ability.
- (B) 0 1 2 3 16. Makes only half-hearted attempts to do assignments.
- (A) 0 1 2 3 17. When the child fails one part of a task, he/she is certain to fail at the entire task.
- (B) 0 1 2 3 18. If the child has trouble with the first problem in a set, he/she stops working.

A = Attributional
B = Behavioral

Appendix BAttribution Cards

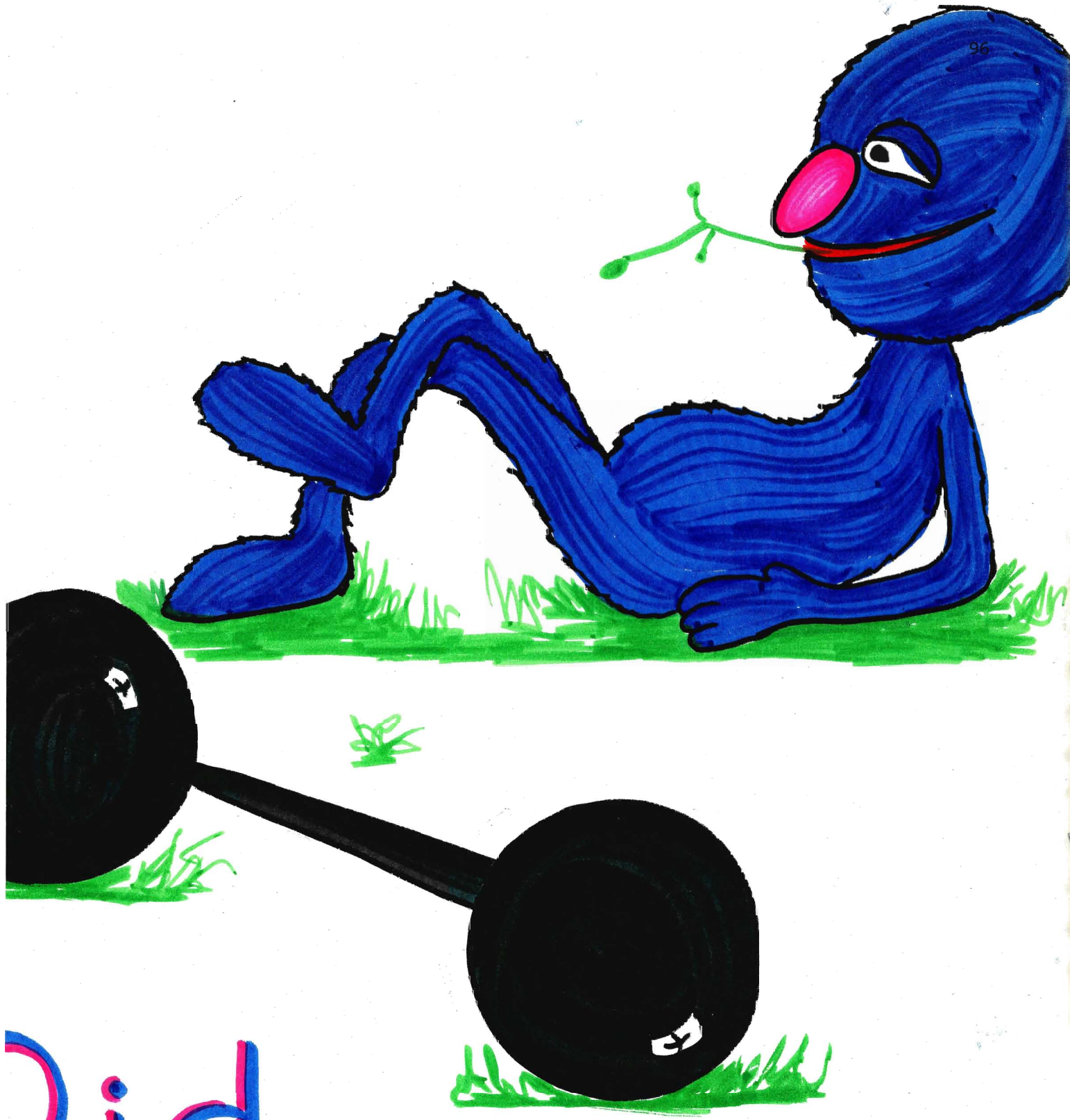
Easy



Too Hard



Tried Hard



Did
Not Try Hard



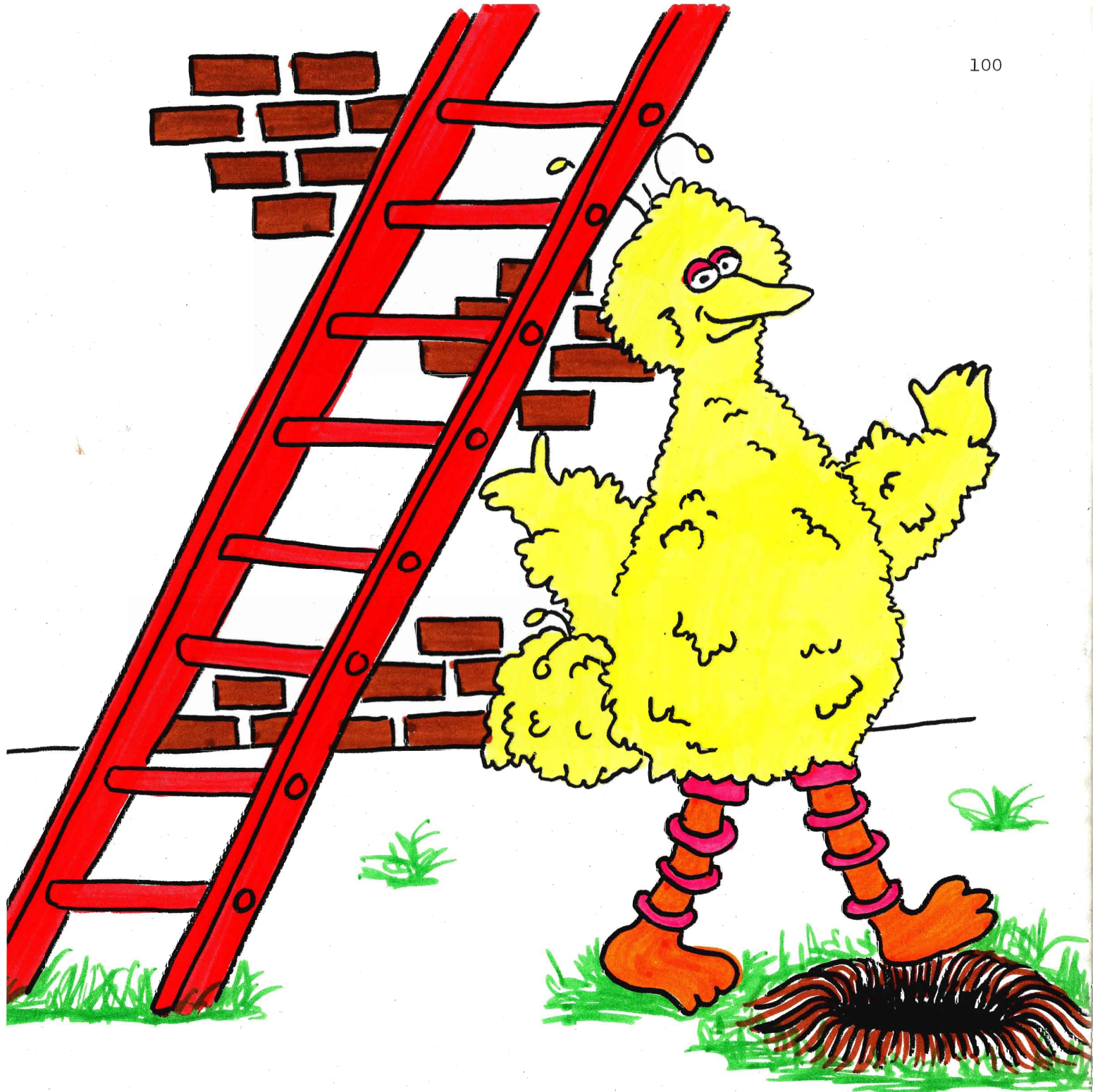
Smart



Not Smart



LUCKY



Bad Luck

Appendix CPERCEIVED INFLUENCE QUESTIONNAIRE :

1. Is your teacher's name
 - (a) Mrs. Brown
 - (b) (real name)
2. Is your school's name
 - (a) (real name)
 - (b) Prince Philip
3. When you get a question right in math, is it because
 - (a) you are smart
 - (b) it is easy
4. When you get a question wrong in math, is it because
 - (a) you did not try hard enough
 - (b) it was too hard
5. When you get your work right, is it because
 - (a) it was easy
 - (b) you were smart
6. When your printing is messy, is it because
 - (a) you had bad luck
 - (b) you didn't try hard enough
7. When you get your work wrong, is it because
 - (a) you weren't smart enough
 - (b) The work was too hard
8. When you forget something you have heard at school, is it because
 - (a) you didn't try hard enough to remember
 - (b) your teacher didn't explain it well enough
9. When you play a game well, is it because
 - (a) you were lucky
 - (b) you tried hard
10. When you can't play a game, is it because
 - (a) you had bad luck
 - (b) you didn't try hard enough
11. When your printing is neat, is it because
 - (a) you tried hard
 - (b) it was easy
12. When you can't draw something you would like to, is it because
 - (a) you had bad luck
 - (b) you didn't try hard enough

Appendix D

Guidelines set forth by Meichenbaum and Goodman (1979) were used to determine units of speech.

" 1. A speech unit is generally defined by natural phrasing and sentence structure. Any phrase or sentence comprises one unit, subject to the second criterion, below. Nonsentences and nonphrases are also utilized by the second guideline.

2. An analysis of the pauses indicated that a two-second criterion could be employed to further utilize verbalizations. If a two-second or longer pause occurred between verbalizations then they were designated as separate units, irrespective of sentence structure." (p. 329).

The speech category system used by Harris (1982) based on those presented by Beaudichon (1973), Klein (1964), Meichenbaum and Goodman (1979), and Rubin (1979) was used with one major exception. While she categorized general and affective statements about a task, (eg. some mazes are really tricky) as task-irrelevant, both these were considered task-relevant in this study.

Task-relevant speech - Private or social task-relevant speech is speech which

- a.directs self or others about a task, eg. "I need to make a straight line".
- b.analyzes the task, eg. "I need to start here."
- c.asks questions about task to self or others and/or gives answers, eg. "What will go next?"
- d.comments on materials, eg. "This is a yellow crayon."
- e. makes general statements about task, eg. "I like yellow."
- f.makes affective statements about task, eg. "I can't do it."
- g.gives feedback about task, eg. "That's wrong."

Task-irrelevant Speech - Private or social task-irrelevant speech is speech which:

- a.makes nonsense sounds, eg. "La, La, La"
- b.consists of word play, eg. "bitty, bitty, bit"
- c.describes irrelevant stimuli, eg. "What's that smell"
- d.Constitutes off topic conversation, eg. "I'll get my brother to hit you."

Positive evaluation of performance speech - Any self reference speech which is positive in content and tone, eg. "I did it right". "Good boy."

Negative evaluation of performance speech - Any self reference speech which is negative in content and tone, eg. "I can't do it."

Non-Speech Measures:

On Task Behavior - Criteria established by Krupski (1979) were used to determine on task behavior. On task behavior occurs when the subject:

- a.makes eye contact with work.
- b.has interactions with teacher related to work.
- c.has interactions with peers related to work.

Non-verbal positive evaluation of performance - Any gesture or movement which denotes satisfaction or approval of his efforts.

Non-verbal negative evaluation of performance - Any gesture or movement which denotes dissatisfaction or frustration with his efforts.

CODING PROCEDURE EXAMPLES

Coding Procedures for Verbal Measures -
Subject 4 / Session 1 - Baseline Measures:

Task-Relevant Speech (TR)
 Task-Irrelevant Speech (TI)
 Positive Evaluation of Performance (PE)
 Negative Evaluation of Performance (NE)

1. I like you G ____.	TI
2. G ____ Ganu. ____.	TI
3. G ____ Ganu.	TI
4. I can't. (meaning work)	NE/TR
5. Where's the beef?	TI
6. What's that? (pointing out the window)	TI
7. All finished.	PE/TR
8. Where's the beef?	TI
9. I did it.	PE/TR
10. Bow Wow	TI
11. Who's car is this?	TI
12. Mine.	TI
13. Me play.	TI
14. No.(talking about work)	NE/TR
15. I can't.	NE/TR
16. No.	NE/TR
17. Watch this. (making car go)	TI
18. I like you.	TI
19. I like G ____.	TI
20. No I can't.	NE/TR
21. I did.	PE/TR

$\frac{TR}{8}$	$\frac{TI}{13}$	$\frac{PE}{3}$	$\frac{NE}{5}$	$\frac{Total}{29}$
----------------	-----------------	----------------	----------------	--------------------

Coding Procedures for Non-Verbal Measures -
Subject 1 / Session 1 - Baseline Measures:

Positive Non-Verbal Gestures (PG)
 Negative Non-Verbal Gestures (NG)

1. Threw a paper on floor	NG
2. Put head down	NG
3. Sucked thumb	NG
4. Threw paper on floor	NG
5. Got under table	NG
6. Put head down	NG
7. Shook head	NG
8. Rung hands	NG
9. Put head down	NG
10. Threw paper	NG
11. Rung hands	NG
12. Shook head	NG
13. Pulled hair	NG
14. Cried	NG
15. Put head down	NG
16. Sucked thumb	NG

	<u>NG</u> 16	<u>PG</u> 0	<u>Total</u> 16
<u>Time on Task -</u>			
Subject 2/ Session 5 - Baseline Measures:			
1. off		21. off	
2. off		22. off	
3. off		23. off	
4. off		24. off	
5. off		25. on	
6. on		26. off	
7. off		27. off	
8. off		28. off	
9. on		29. off	
10. on		30. off	
11. off		31. off	
12. off		32. off	
13. off		33. on	
14. off		34. off	
15. off		35. off	
16. off		36. off	
17. off		37. off	
18. off		38. on	
19. off		39. off	
20. off		40. off	
Percentage of time on task - 25%			

Appendix E

CBM Intervention Cards





Think



Listen